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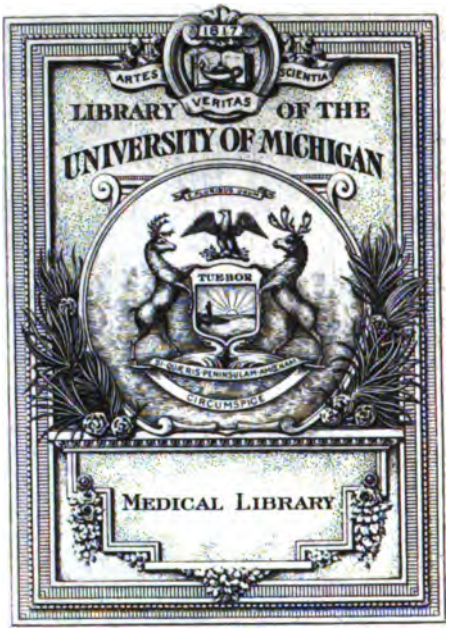
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THE

MODERN TREATMENT

OF

NERVOUS AND MENTAL DISEASES

BY AMERICAN AND BRITISH AUTHORS

EDITED BY

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VOLUME I

ILLUSTRATED

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PREFACE

THESE volumes, devoted to the treatment of nervous and mental diseases, are designed to meet the needs which the rapid advances in knowledge of neurology and psychiatry have created. The nervous system is here regarded as a whole and as inclusive of the mind, and it is maintained that disturbances of any and all of its functions, mental as well as physical, are proper subjects for therapeutics. While, therefore, the various diseases have been considered in full detail, care has been taken to supply an omission conspicuous in previous treatises. They have been too narrowly concerned with details, albeit important ones, such as disorders of gait, of power, of sensation, and of related phenomena, to the neglect of the larger human problem of the individual, the man, the biological unit, and his social relations. Practically all such works have stopped short at the point where they should have begun. They have told us in large measure how to patch up broken machinery, but rarely have they ever suggested or given directions for avoiding the wrecks.

The present work lays emphasis upon the psychical side of life as being worth quite as much consideration as the physical. It sets forth doctrines of nervous and mental hygiene, reconstructive factors in social organization as applied to human ills, and endeavors to present a broad front to the pessimistic nihilism in therapeutics that has been too long current in these fields, because the doctor's eyes have been too closely focussed on the individual examples and results of human accidents. Neurology and psychiatry offer the widest possible opportunities for preventive medicine as well as for therapeutic optimism. The myopic materialists, however, have failed to perceive them, and false therapeutic cults have taken advantage of the situation.

The program here presented is essentially therapeutic. Planned as it has been on a broad scale, the more practical issues confronting the clinician have, nevertheless, been fully met. We have cheerfully sacrificed philosophical views for more definite guideposts wherever, in the present state of our knowledge, such a course seemed wiser.

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Without the earnest support of a most competent corps of contributors this undertaking could not have been completed. It affords us the greatest pleasure to acknowledge the sense of obligation we feel, not only for the high degree of ability each author brought to his task, but also for his cordial adoption of our conception of the plan and purposes of the work. As a result of these combined efforts, therefore, we feel great satisfaction in placing before the medical profession this valuable collection of monographs in a field of prime importance.

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INTRODUCTION

In the succeeding chapters we feel that we have been able to present to our readers, almost for the first time, a consistent and fairly comprehensive outline of a rational therapeutics of the diseases of the nervous system, including those of the mind. Our aim has been to focus attention upon the processes, to differentiate between closely related ones, to outline as clearly and succinctly as possible their etiology, and finally to present at much length and in detail how best to remove or overcome the main features of the disorders. In doing this we feel we have paid due attention to the perspective of the therapeutic problems of neurology and psychiatry in their widest and truest sense. We have viewed the whole situation as one of mutually correlated parts, and have attempted to present a practical, common-sense, and coherent treatise for the guidance of all those who may need help.

This work is not addressed to the medical practitioner alone. It is written for him principally, but we appeal to a wider audience. The educator; the legislator; the judge and the lawyer; the student of the problems of criminology, of immigration, and of dangerous trades; the hospital superintendent; the social worker and the military man —these and the intelligent layman, all in fact who are cognizant of and desirous of furthering the solution of those large and important questions connected with nervous and mental hygiene—for such this work has been planned and completed.

Whether regarded in its internal organization (nervous relations) or in its adaptation to external surroundings (social or mental relations) the highest attribute of the nervous system is that of an adjusting mechanism; and since it exercises the function of correlation and adjustment equally in both processes, we feel that a separate consideration of mental and nervous disorders would be a mistake save in a few instances where greater convenience is secured.

Our discussion of Syphilis of the Nervous System exemplifies this principle most distinctly. Here as elsewhere the therapeutic goal is kept in view. It is immaterial that we have brought together in one chapter very diverse clinical pictures which in more orthodox treatises would have been widely distributed throughout their pages. Nowhere, however, in such treatises does one get so clear a conception of a disease process that the method of its treatment follows as a natural corollary. From our point of view it is of secondary value to draw any hard and fast line of classification between an individual who through a process, symbolized by the word tabes, presents certain motor disorders and

one who through an entirely different clinical picture, called paresis, shows disorders of a mental nature. It is our evident purpose, so far as possible, to present the causal factor common to both phenomena and to emphasize the need in each of a similar or identical mode of therapeutic attack.

We feel in laying stress upon the prophylaxis of nervous and mental diseases that we are directing attention to a fundamental aspect to which too much emphasis cannot be given. Our greatest hope lies in that hygiene which seeks to solve not only the practical every-day issues, but also those more intricate and involved situations bound up in the germ plasm, racial characters and trends, in early child environment, and in psychosexual development. The widespread pessimistic attitude toward the therapy of certain affections of the nervous system has been in part justified, because of the slowness with which *Homo faber* has made his tools to cut into these issues. If a knowledge of these becomes a part of social consciousness, expressing itself practically in the right kind of mating, or in an enlightened eugenics, or more care or more protective attitudes toward certain disintegrating factors, such as alcoholism, prostitution, and syphilis, then many of the most sinister problems of the therapy of the nervous system will disappear.

So, too, the discussions on Education, Feeble-mindedness, and Sex-education go immediately to the heart of the most vital situations in human society, situations which medical science alone will be able to solve. The neurologist and psychiatrist have large opportunities also in making their working concepts valuable to society in the fields of pedagogy, criminology, or other social disharmonies, since advance in them must come through the labor of those acquainted with the structure and functions of the nervous system.

In past centuries race amalgamations have built up fairly stable nations. As instances of these we may cite what took place in the Valley of the Nile and later in the British Isles; but now in the United States a prodigious biological experiment in race admixture and race amalgamation is in process. The tide of immigration has become an item of paramount influence in the mental evolution and health of the nation, hence the careful consideration of this subject in these pages.

It is not because of any proportionate excess of the psychoneuroses in America that we have chosen to devote so much attention to these borderland conditions, but because of very important considerations which have not always been appreciated at their proper value. These conditions have, for the most part, been dismissed with some general remarks on psychotherapy. We have felt that a detailed therapy must be laid down, and at a length commensurate with their percentage of incidence in the community, and furthermore, we have been thus guided because therapy, if properly applied, is so effective. Here one is not dealing with hopeless conditions, but with curable ones, if the physician obtains the clue to the difficulty, and has patience to follow

it out to the end. Without exception the psychoneuroses contribute more to the physician's practice than any other form of nervous or mental disorder.

Aside from these practical considerations the study of the psychoneuroses forms the natural avenue of approach to the understanding of the more profound and widespread disturbances which are met with in the psychoses. The recent studies of the mental mechanisms concerned in this group of less sinister and more curable conditions have led, by the application of the principles discovered, to a better comprehension of the more serious disorders, and afforded guiding ideas looking forward to their prophylaxis and treatment. This is seen more particularly in the chapters on Dementia Præcox and Paranoid States.

This method of dealing with mental phenomena is a result of the more recent trends in psychiatry which are getting away from the formal descriptive attitude of past years, and which demand a logical explanation of human conduct on the basis of a dynamic and genetic psychology.

No work on treatment of nervous affections can hope to cope with actual daily experiences without more than the usual general remarks on the "treatment of insanity." We have throughout taken the position that the word "insanity" should be eliminated from a twentieth century work on medicine. It is a relic of that time when all brain disorders with predominant mental symptoms were considered as one disease. It has no place in the present order of things—certainly not in medicine, and probably better not in law. Psychiatry has advanced to a position where its concepts have been able to envisage large groups of disorders of allied types with fairly concrete notions as to the modes of treatment. A modern work on medicine that had a chapter on treatment of "lung disease" as a unit would be condemned. Even pneumonia, whether influenzal, diplococcal, or tubercular, must needs be approached therapeutically by different methods. Hence we have here chosen to discuss the treatment of definite psychotic pictures, utilizing such nosological conceptions as serve the purposes of convenience, and as offering, in our opinion, the most rational form of expression.

Turning to those disorders of the nervous system which involve the internal or somatic adjustment, more frequently spoken of as Nervous, certain nosological difficulties arise. The field of neurology has been so minutely cultivated that it presents a medley of creations which defy classification along purely etiological, clinical, pathological, or anatomical lines. While recognizing merit in the efforts of others to overcome this difficulty, we have here chosen a simpler if possibly less technically correct attitude. It has seemed desirable to approach the problems largely from a combined etiological and clinical standpoint, grouping as far as possible those disorders of similar causation and closely related clinical signs. Yet departures from this general scheme have seemed inevitable. Thus the Muscular Atrophy and

Muscular Dystrophy group is largely one of purely clinical value—while the therapy of the Syphilitic Disorders has been built upon etiological and pathological foundations. Therapeutic needs, however, justify and demand that such liberties be taken with any nosological scheme until our knowledge of the diseases of the nervous system becomes more definite.

Here treatment remains the chief aim of the various chapters, but a wider discussion of the rationale enters as a desirable part. In neurology, pathological data are more generally applicable to the problems of therapeutics, hence it has been deemed of value to include more clinicopathological details in the discussion of these disease reactions. They permit a more liberal use of illustration than is possible in mental affections, in which disturbed conduct affords the criteria for clinical types. The introduction of this clinical and pathological material is of very distinct service, particularly in certain rarer affections, in which new ground is being actively worked over. Even in the conditions more commonly encountered, we have considered it of advantage to present just enough clinical and pathological data to enable one who seeks help from these volumes to be quite certain of his diagnosis, and hence able to pursue his therapeutic course with greater vigor and exactitude.

In order to insure this more definite guidance in treatment, all general chapters have been omitted. This course has been followed because of our conviction that chapters upon such general topics as massage, electricity, hydrotherapy, dietetics, etc., tend to confuse rather than to sharpen the issues. The practitioner wants assistance in dealing with a definite pathological entity. It is of secondary value to know all of the various things for which a certain drug, form of gymnastics, kind of food, or electrical current may possibly be of some value.

NERVOUS AND MENTAL DISEASES

CHAPTER I

EUGENICS AND HEREDITY IN NERVOUS AND MENTAL DISEASES

By WILLIAM A. WHITE

INTRODUCTION

WHATEVER man may be at any particular time he is the product of the contributions of his ancestors, which he brings into the world with him, and of the effects upon him of the environment in which he finds himself. The problem of therapeutics, as ordinarily understood, the application of remedies to the treatment of disease concerns itself with the second factor—the modification of man by his environment. The first factor is the factor of heredity, and it is with this factor that the problem of eugenics, or stirpiculture, concerns itself—preventive medicine as applied to the elimination of unfit types.

The effects of the environment have been studied exhaustively, as witness the development of the germ theory of disease. But manifestly the study of the effects of environment can only go part way toward the solution of various questions which arise in medicine. It is necessary to know, in addition, the forces inherent in the individual so that his reaction to the environmental forces may be properly evaluated. As in many instances, for example, direct infections such as typhoid fever, the matter of the environmental disintegrating factor that is brought to bear upon the individual is of primary importance, so in certain other conditions, such for example as the presence of supernumerary digits, the question of the forces that the individual brings with him into the world becomes of paramount value.

With relation to such questions as are involved in the presence of supernumerary digits the physician has been too prone to rest his explanation in the assumption that the defect is hereditary and to let it go at that. Having given a name to what he conceives to be the all necessary etiological factor, further investigation is by implication deemed unnecessary, and the matter rests.

Unfortunately, or really fortunately, there are many conditions where this explanation is, to say the least, extremely unsatisfactory. For

example, the explanation of why a person is alcoholic is often made to rest in the statement that his father before him was alcoholic. A mere cursory review of the situation will show that even though such an explanation in an individual case might conceivably be true it fails to take many factors into consideration. For example, a person might have inherited alcoholism directly from his father. On the other hand, because his father was alcoholic he might have been subjected from early youth and onward to the influence of an alcoholic environment and so have acquired alcoholism. Or the alcoholism might be the expression of a disease such as manic-depressive psychosis, or it might be the peculiar reaction of a certain kind of individual under the special stress of some sorrow or failure, and finally, it is quite as logical to assume that the alcoholism was not inherited but that the particular thing which made it possible for the father to become alcoholic was inherited, and, therefore, under the influence of opportunity the individual manifested this particular element in his make-up in this particular way. On the other hand, it might be assumed that the alcoholism was purely an acquired habit and that it was also an acquired habit in the father, and that the two may have or may not have, as a result of this assumption, any connection one with another.

It will be seen, therefore, that before definite conclusions can be reached with reference to questions of this sort a careful investigation of all the available data is necessary and their evaluation upon the basis of our present knowledge.

Interrelation between Eugenics and Heredity.—Thus the whole question of eugenics, or the question of race betterment, is bound up with the question of heredity; but the assumption of heredity in the past has all too frequently been a short path for escaping from a difficulty without any well-defined understanding of what that assumption really implied.

The concept of heredity is but a scientific hypothesis which is put forward for the explanation of certain observed facts, and it serves its purpose by accounting for those facts on the assumption that certain things are true: in the main on the assumption that certain tendencies are handed down by ancestors to their descendants. To rest an explanation of a given condition in the simple assumption that it is inherited cannot help materially to an understanding of that condition. A scientific hypothesis is valuable so long as it leads to the discovery of new facts and to the understanding of old ones. But in this case it has not infrequently put a damper upon further progress by creating the delusion that everything has been explained. Unless we can go farther, therefore, than assuming that a given condition is inherited we are not only interfering with further knowledge with regard to that condition, but we are taking an attitude toward it which is distinctly pessimistic, and to that extent, at least, unwarranted, especially in the face of the facts of recent methods of sanitation which have steadily advanced with the well-known result of materially prolonging the span of human life.

It is eminently fitting in a work of this kind that the knowledge which has been gained during the past few years by intensive studies of the phenomena of inheritance should be placed briefly before the reader so that he may have some idea of the trends of modern opinion and investigation and the facts which have been worked out. While these facts are perhaps at present very meagre, still the concepts which have arisen as a result of the study of inheritance are of no little importance in getting at a comprehensive grasp of many of the problems of neurology and psychiatry.

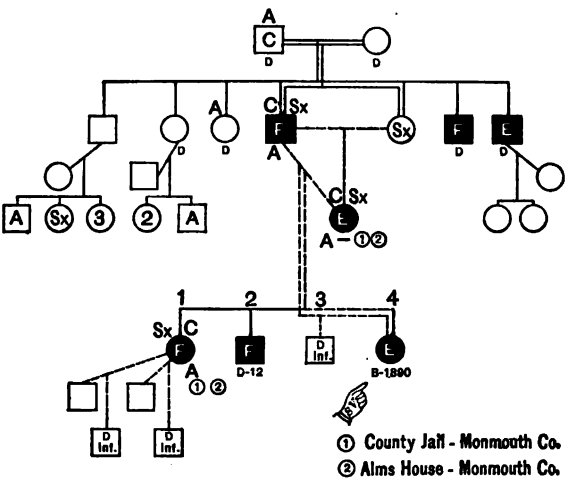
In a short chapter it will, of course, be impossible to cover the entire ground of eugenics and all the questions involved in a consideration of heredity. These questions are intimately bound up with the whole field of biology, especially with those theoretical considerations which deal with an explanation of the evolution process as a whole, such as the origin of species, and naturally reference to these problems will, from time to time, have to be made. It is the intention of the writer, however, only to set forth such aspects of the questions as are of practical importance in understanding their bearing on the problems at issue and indulging in explanations only so far as may be necessary for the sake of clearness.

Importance of Eugenics.—If the tremendous importance of the subject of race betterment has practically escaped attention it can only be explained upon the general theory that it is the obvious and the usual that do not attract notice. A railroad disaster in which forty or fifty people are killed, or an epidemic disease which sweeps over a certain territory and claims a few hundred lives, instantly attracts the most acute attention from one end of the country to the other; but the great army of the unfit who are daily resident in our midst, confined by the thousands in our institutions and costing untold millions of dollars, directly or indirectly, hardly come in for passing comment. On the first day of January, 1910, there were 187,454 patients confined in the public hospitals for the insane in the United States, and during that year there were admitted to those hospitals 60,603 patients. This is one, and only one, of the classes of the unfit. Besides these there are the epileptics, the tremendous class of criminals, many of the deaf, the dumb, the blind, the crippled, and the paupers that would considerably more than double this number. And their expense to the country is only partly stated when it is expressed in terms of the number of dollars required to support them. Many of these individuals represent not only the expense of their support, but they represent wage-earners become idle, which means that someone else not only has to contribute to their support, but to the support of those dependent upon them, while the criminal classes represent still farther than this the money values of the depredations they commit upon society. The available statistics, which confessedly only represent a portion of the facts, are themselves appalling.

Then again if we figure the population of the globe to be one and one-half billion we may assume that some fifty millions of children

are born each year, while in the United States, with a population of approximately ninety millions, we may assume a birth rate of two and one-half millions of children each year. Of this two and one-half millions nearly one-half million die before the completion of their first year and a half of the whole number are dead before they reach their twenty-third year. When we consider the potentiality of this tremendous army who go down to death each year, largely from preventable causes, we may wonder whether the subject of eugenics from the economic standpoint alone may not be the most important single question confronting us.

FIG. 1



The "hovel" type of reproduction of defectives. In a hut in the woods there was brought up a family of defectives. One of the boys, who is a drunken, feeble-minded fellow, with criminalistic tendencies, had by his own sister a daughter who is a drunken epileptic, who has been the inmate both of the county jail and the county poorhouse. By her father she had four children, of whom one is epileptic, two are feeble-minded (the girl has a very bad record of drunkenness, crime, and sexual license), and the other one was an idiot monster who died directly after being born. Close inbreeding of such a strain results only in this imperfect fruit. *A*, alcoholic; *C*, criminalistic; *D*, deaf; *E*, epileptic; *F*, feeble-minded; *I*, insane; *N*, normal; *SV* in the hand means an inmate of a State Village for Epileptics. (Taken from Davenport.)

A glance at Fig. 1 will show graphically the possibilities of faulty mating and will give some idea about how the conditions referred to actually come to pass. In the light of such a family chart it will be seen that eugenics has both a *positive* and a *negative* side. The positive side of eugenics has to do with bringing about desirable conditions, while the negative side has to do with preventing undesirable conditions.

THEORETICAL CONSIDERATIONS

In order to understand the present status of the theory of heredity in its application to man it is necessary to preliminarily discuss certain fundamentals.

Sexual Reproduction.—The practically universal separation of all living forms into two sexes, the male and female, and the phenomenon

FIG. 2

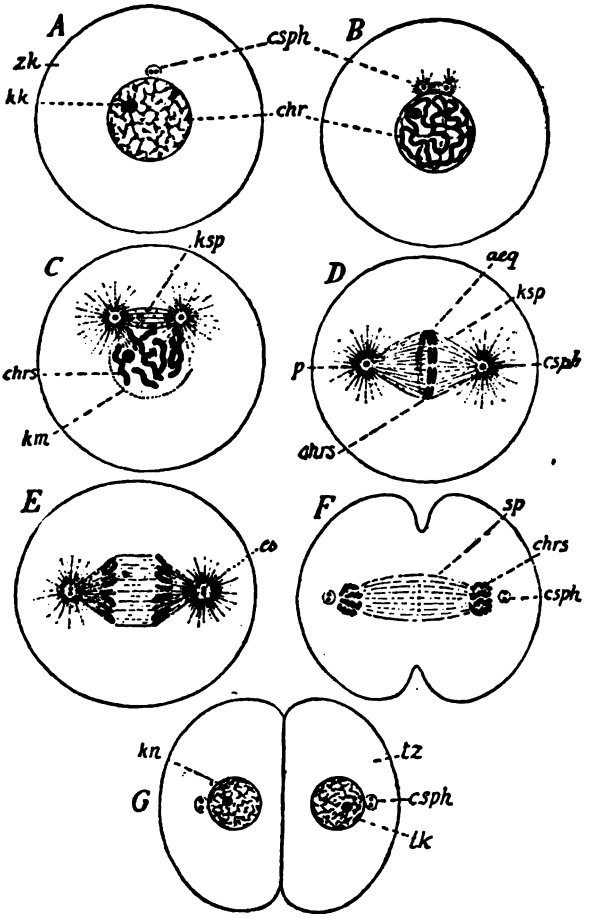


Diagram of nuclear division, adapted from E. B. Wilson. *A*, resting cell with cell substance (*sk*), centrosphere (*csph*), which contains two centrosomes, nucleolus (*kk*), and chromosomes (*chr*), the last distributed in the nuclear reticulum. *B*, the chromatin united in a coiled thread; the centrosphere divided into two, and giving off rays which unite the halves. *C*, the nuclear spindle (*ksp*) formed, the rays more strongly developed, the nuclear membrane (*km*) in process of dissolution, the chromatin thread divided into eight similar pieces (*chrs*), the rays are attaching themselves to the chromosomes. *D*, perfected nuclear spindle with the two centrospheres at the poles (*csph*) and the eight chromosomes (*chrs*) in the equator of the spindle, all now longitudinally split. *E*, daughter chromosomes diverging from one another, but still united by filaments, the centrosomes (*cs*) are already doubled for the next division. *F*, daughter chromosomes, quite separated from one another, are already beginning to give off processes; the cell substance is beginning to be constricted. *G*, end of the process of division; two daughter cells (*ts*) with similar nuclear reticulum (*tk*) and centrospheres (*csph*), as in *A*.

of conjugation for purposes of reproduction, indicate that the question of sex is intimately bound up with that of heredity. It is only the

very lowest forms of life that reproduce asexually or parthenogenetically, and even in many of these lowest forms a study of a great number of generations indicate that conjugation occurs from time to time.

In order to understand what conjugation accomplishes it may be well to look for a moment at Fig. 2, which shows the mechanism of the division of the nucleus. Here we see graphically represented the process by which the nucleus breaks up into a number of chromosomes which are rearranged in the resulting daughter cells. We shall see that a similar process occurs in sexual reproduction. Figs. 3 and 4 show the production of the mature ovum and spermatozoön. Fig. 3 shows the primitive sperm cell breaking up by the so-called *maturation divisions*

FIG. 8

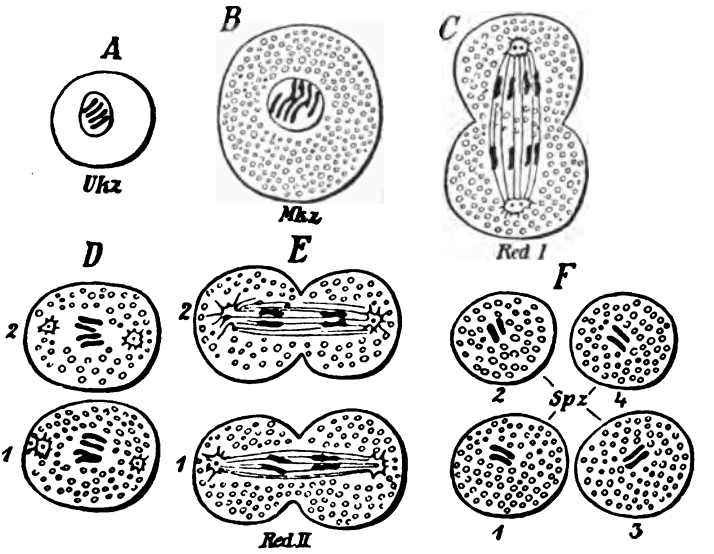


Diagram of the maturation divisions of the sperm cell, adapted from O. Hertwig. *A*, primitive sperm cell. *B*, mother sperm cell. *C*, first maturation division. *D*, 1 and 2, the two daughter cells. *E*, the second maturation division, by which the four cells of *F* arise, each with half the number of chromosomes.

into four spermatozoa, each one of which contains half the number of chromosomes contained in the primitive sperm cell. Fig. 4 shows a similar process with reference to the ovum, but here instead of four mature ova being produced from the primitive germ cell each one with half the number of chromosomes only one mature ovum is produced and three immature ova are thrown off as polar bodies. The three polar bodies and the mature ovum each have one-half the number of chromosomes of the primitive germ cell.

Amphimixis.—In the process of fertilization a sperm cell and an egg cell come together. The chromosomes of each split up into double the number as we saw in Fig. 2, unite in pairs to form the karyokinetic

figures, and the resulting daughter cells then have double the number of chromosomes of the original sperm and egg cells. The *reduction divisions* of the sexual cells, therefore, were rendered necessary in order to maintain the number of chromosomes in the cells resulting from their conjugation which are characteristic of the particular species.

FIG. 4

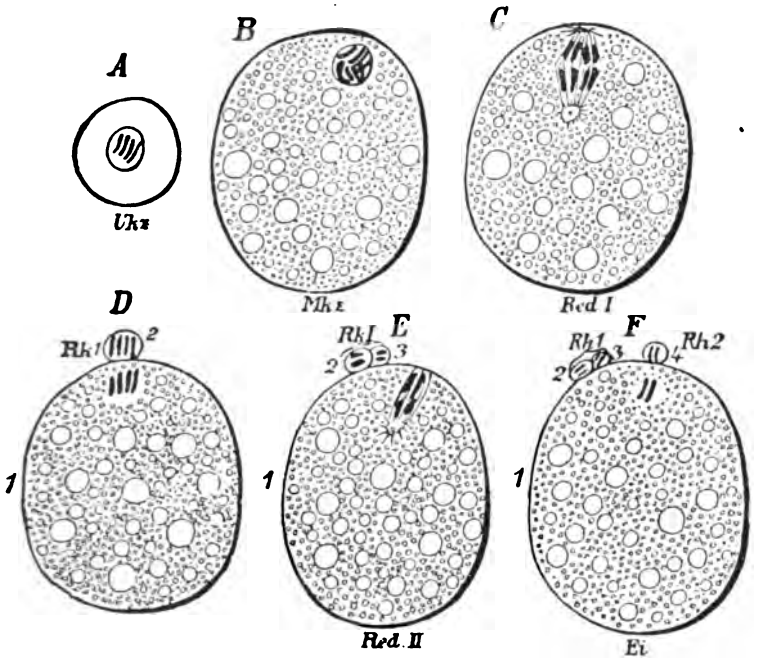


Diagram of the maturation divisions of the ovum. *A*, primitive germ cell. *B*, mother egg cell, which has grown and doubled the number of its chromosomes. *C*, first maturation division. *D*, immediately thereafter; *RkI*, the first directive cell or polar body. *E*, the second maturation spindle has been formed; the first polar body has divided into two (2 and 3); the four chromosomes remaining in the ovum lie in the second directive spindle. *F*, immediately after the second maturation division; 1, the mature ovum; 2, 3, and 4, the three polar cells, each of these four cells containing two chromosomes. (After Weismann.)

It is perfectly evident from this series of facts that one of the functions of conjugation is to mix the chromosomes of the two parents, and that sexual reproduction results in a mixture of parental qualities through the mechanism of the nuclear divisions of the sex cells, and it is assumed in consequence that it is the nucleus, or more specifically, the chromatin of the nucleus that is the carrier of the hereditary qualities.

This mixture of the nuclear chromosomes, *amphimixis*, as it has been called, probably has other important functions besides those mentioned. It has been supposed that it was necessary in order to create those variations, particularly those larger variations which are designated as mutations, which natural selection could take hold of, it undoubtedly

also has the function of eliminating certain variations from the type which are possessed only by one parent and, therefore, is constantly tending to bring the individual back to the average of the species. Deviations from the species type which were possessed by both parents would tend to be emphasized, while deviations possessed by only one would tend to be wiped out. Furthermore, a greater number of combinations of qualities, or, as we shall see later, of so-called unit characters, is rendered possible by amphimixis than would be possible by parthenogenesis.

Continuity of the Germ Plasm.—It will be seen from the foregoing statements that the reproduction of bi-sexual organisms is a function relegated to certain cells set apart for its performance—the germ cells. These germ cells are differentiated from the body or soma cells very early in the course of development and occupy their position in the ovaries and the testes. They are thus in a sense out of relation with the body cells and lead a relatively independent existence, except, of course, for the fluids which surround them and from which they derive their nourishment. This fact has given origin to the theory of the *continuity of the germ plasm*, by which is meant that the hereditary factors are carried on from individual to individual by means of the plasm of the germ cells practically uninfluenced by what may occur in the body at large, so that no matter what happens to the body, as, for example, a mutilation, the loss of a limb, or a more settled change, the acquirement of some special skill in some one direction, the germ cells are supposed to be uninfluenced and to carry on to the next generation only what they originally contained.

This theory of the continuity of the germ plasm has received confirmation in recent investigations by the discovery of the so-called sex, or as they have been designated, *the X chromosomes*. In the female the forerunners of the ovum are a pair of these chromosomes which are usually smaller than the others, while the forerunner of the sperm cells is a single chromosome, thus making the number of chromosomes in the cell odd. It would seem, therefore, that in the earliest form of the cell, even in the chromophilic net-work of the nucleus, there is already a differentiation into those parts that are subsequently to become the sex cells and the carriers of heredity. This fact is of great importance in the consideration of the inheritance of so-called *sex-limited characters*, that is, characters which are confined to one sex and which are conceived as being bound up with the chromosomes carrying the determining factors of sex.

Inheritance of Acquired Characters.—The logical inference from the theory of the continuity of the germ plasm is that characters which are acquired by the individual in his lifetime, or to put it obversely, characters which the individual presents but which have not been inherited through the medium of the germ plasm, cannot be transmitted to his progeny. This conclusion is based upon the conceived independence of the germ cells, and was for a long time the generally accepted belief of biologists; but there seems lately to be a growing

feeling that the theory is not fully satisfactory and new formulations are being tentatively put forward.

The whole question of the inheritance of acquired characters, however, is still under discussion, and while it may be true, as Weismann states, that the inheritance of acquired characters is inconceivable, still we must remember that it is perhaps inconceivable only because we have not a knowledge of the facts upon which it is based, if it is a fact. It would seem, however, that there is a certain sanction for believing that the germ plasm may be influenced by the nutritional fluids which surround it, more particularly by the occurrence in those fluids of toxic substances such as would result, for example, by a chronic poisoning of the individual by alcohol or tuberculosis. On the other hand, we have to remember that such an influence can only continue so long as the sex cells are resident in the body of the individual in whom the poisoning occurs, that if the father is alcoholic, for example, as soon as fertilization occurs in the body of the mother the sperm cells have been removed from this influence, and that even if the mother is alcoholic as soon as birth takes place again the child is removed from these disintegrating influences, and wherever we see a disintegrating or distorting influence affecting a cell removed we see that that cell has a tendency immediately to rebound as it were and to assume its normal characters.

Herein lie questions that in the present state of our knowledge are almost impossible of evaluating, because up to the present time it is impossible to define an acquired character. Alcoholism may be said to be acquired, and yet we know with what different degrees of ease certain individuals become alcoholic and we, therefore, have a right to assume that these different degrees are based upon some inherent differences in the individual which again we must assume are inherited and have come over with the germ plasm. The important thing to remember is not to assume a one-sided viewpoint, but to bear constantly in mind the fact that the individual is the result both of the tendencies which he acquired through the germ plasm of his ancestors, plus the effects produced upon him by his environment.

Constitution of the Chromosomes.—A reference to the mechanism of the division of the chromosomes in fertilization will show that the resulting cells each contain a nucleus which is made up of one-half derived from the paternal and one-half from the maternal source. If we will go back another generation we will see that both the paternal and maternal chromosomes were similarly derived, and so on indefinitely.

Galton's Law of Ancestral Inheritance.—This condition has given rise to Galton's law of ancestral inheritance, which is to the effect that the parents contribute one-half of the heritage, the grandparents one-fourth, the great-grandparents one-eighth, and so on, or, to be more specific, each parent contributes one-fourth, each grandparent one-eighth, each great-grandparent one-sixteenth to the sum of the individual's heritage.

This law of ancestral inheritance it must be remembered was formulated by Galton not to apply to individuals, but was believed to be the law which expressed the general result when applied to a large number of individuals in any generation, and is true only if we consider the chromosomes as being uniform in structure and the part going to form each nucleus being equal not only in quantity but in quality. This probably, however, is not so. The chromosomes are believed to be the carriers of what have been called *determiners*, which are the hypothetical material transmitters of each separate character of the individual—the so-called *unit characters*. Now while the chromosomes split in the way indicated they must be conceived of as being filled with these determiners. When the chromosomes finally split up with their contained determiners for the formation of the new nuclei that go into the daughter cells the maternal portions and the paternal portions do not stick together but unite with corresponding portions of the opposite sex so that each new germ cell contains some chromosomes of maternal and some of paternal origin, each with its contained determiners.

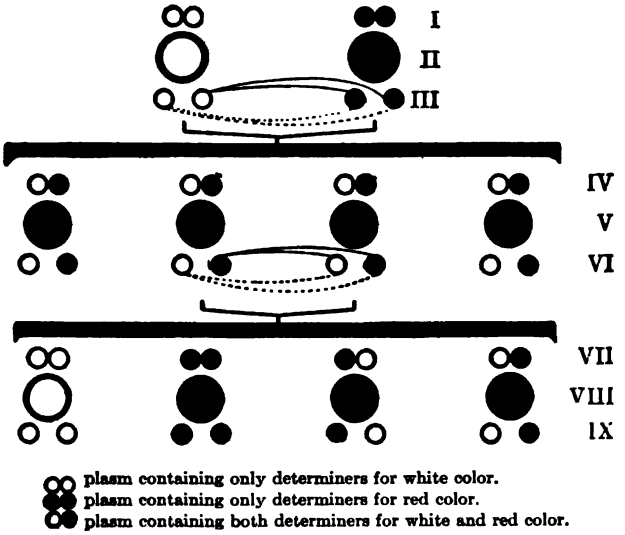
The Mendelian Theory of Inheritance.—The principal conditions for a statement of the Mendelian hypothesis have been set forth in what precedes. The fundamental conception of this hypothesis is that there are certain characters of the individual, usually called unit characters, that are represented by the determiners of the germ plasm. These determiners are conceived of as being definite material entities and, therefore, the inheritance of these special characters cannot be a *blended inheritance* in the true sense of that term but must be an inheritance dependent upon the segregation and grouping of these determiners, and Mendel endeavored to formulate with mathematical precision the ways in which inheritance would manifest itself by determining all the possible combinations in which these determiners could group themselves.

Dominants and Recessives.—Another conception which is essential before outlining the Mendelian law is that certain of these determiners are *dominant*, a character which will hereafter be indicated by *D*, and certain others are *recessive*, a character which will hereafter be indicated by *R*, that is, for example, if a flower contained a determiner for the color red and a determiner for the color white, and the red determiner was dominant the color of the flower would be red, but its germ plasm would contain a white determiner which would, however, be recessive. This would imply that the red flower with a recessive white determiner might produce a certain number at least of white progeny. If a given determiner comes down from one parent only the heredity is said to be *simplex*, while if it comes from both parents the heredity of this quality is said to be *duplex*, while if there are no determiners, on either side, of a given quality that quality is absent and the heredity is said to be *nulliplex*.

These various determiners, then, are not supposed to blend or unite with one another in the fertilized ovum—*zygote*. They, therefore,

remain distinct and ultimately segregate in the germ cells—*gametes*, which arise from the zygotes, and each gamete, therefore, contains only one determiner for each character. This segregation of the determiners in the gametes is what is called *unit segregation* and it is this process which has given origin to the term *gametic purity*. These unit determiners which do not blend, are, therefore, capable of all manner of combinations and have been termed alternative inheritable units or *allelomorphs*. One of these allelomorphs is considered to be dominant over its alternative, so that when they both exist in the zygote the resulting individual shows the characteristic due to the dominant only. This can all best be illustrated by a diagram, Fig. 5. This figure shows the inheritance as a result of crossing the red and white flowering pea. From two homozygotes, I, one containing only

FIG. 5



the determiners for white, the other only the determiners for red, come the two original parents II, each of which produce pure gametes III. The result of the crossing of these gametes gives IV heterozygotes which produce the second bastard generation V, all of which are red, because red is dominant. The crossing of the gametes of this generation VI produced two homozygotes and two heterozygotes, VII, from which the third generation VIII develops. The individual from the white homozygote is white, a pure or extracted recessive, and gives origin only to white gametes IX. The individual from the red homozygote is red, a pure or extracted dominant, and gives origin only to red gametes IX, while the other two individuals both come from heterozygotes and give origin to both red and white gametes IX. These two individuals are red because red is dominant. This result gives

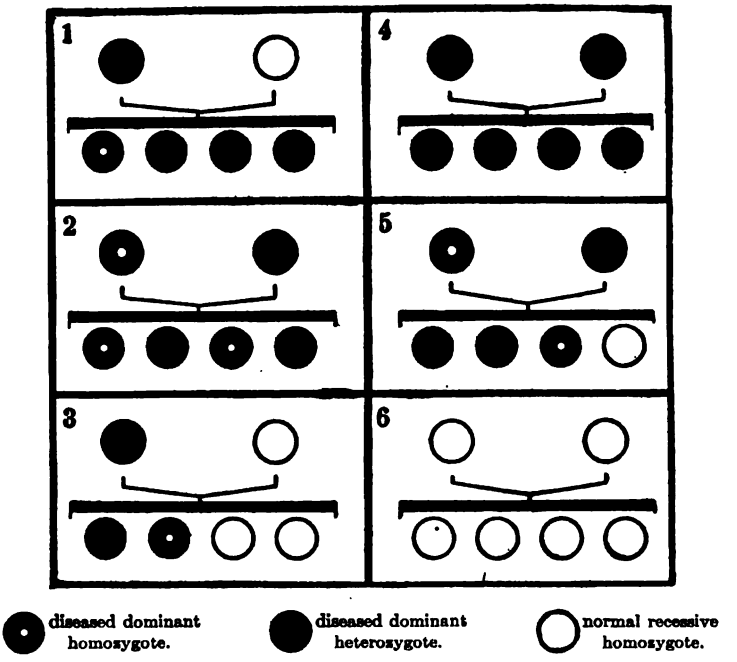
us the Mendelian proportion, one recessive to three dominants in the third generation (VIII).

The mathematical accuracy of this result can be better conceived if the four individuals of the third generation are thought of in the following way: One individual as being white, one individual as being red-white, one individual as being white-red, and one individual as being red. This, it will be seen, exhausts all of the possibilities.

Combinations in Mendelian Inheritance.—Coming now to the possibilities of mating with reference to a dominant and a recessive alternative, there are only six possible combinations. These six modalities may be represented by the following equations:

1. RR × RR = RR
2. DR × RR = DR + RR
3. DD × RR = DR
4. DR × DR = DD + 2DR + RR
5. DD × DR = DD + DR
6. DD × DD = DD

FIG. 6

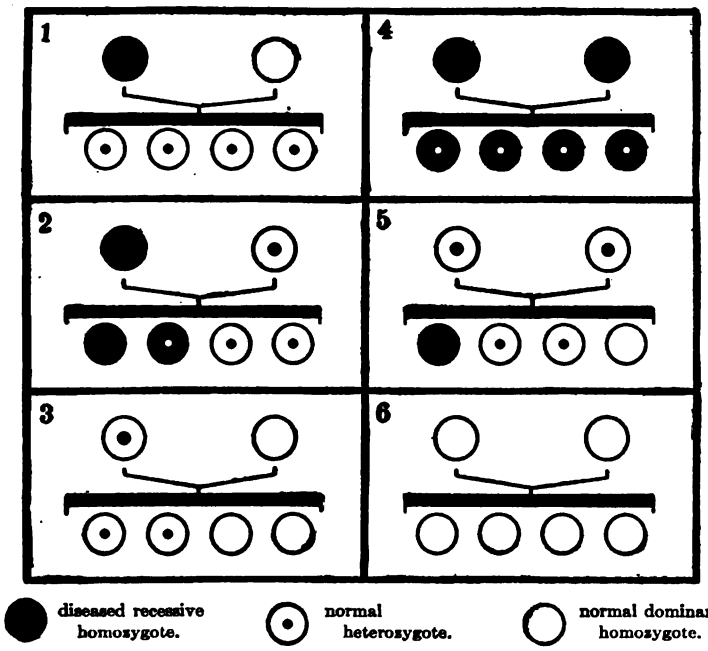


Assuming that a given disease may be due to the presence of something in the germ plasm, or to its absence, it may be inherited as a dominant or as a recessive, and the inheritance has dominant and recessive characteristics giving different results expressed by different proportions in the progeny. Let us take these two possibilities and see how they work out with reference to the six possible modalities. Fig. 6 shows the proportion of diseased individuals when the disease

is dominant. Note that of the 24 progeny represented in this figure, 17 would bear the disease, while of these 17, 10 contain the normal character recessive and, therefore, could give rise to normal progeny. Fig. 7 shows the proportion of diseased individuals when the disease is recessive. Note that in this figure of the 24 progeny 7 only are diseased, while of the remaining 17 that are well 10 carry the disease as recessive and could therefore, give rise to diseased progeny.

Another important implication of these figures is shown by considering the fifth and sixth modalities in Fig. 7. It will be seen that the two matings in these two instances are apparently the same, namely, the matings in both instances are parents that are free themselves

FIG. 7



from disease. They give rise to seven healthy descendants. One descendant, however, is diseased, while two others contain the disease as recessive. This is an extremely important matter for consideration, as it shows very plainly that in advising matings, or in accordance with the recent laws in certain States taking up for consideration questions of negative eugenics, the preventing of progeny, that a conclusion cannot be drawn from a consideration of the individual alone. The individual may be diseased and yet carry the normal possibilities as a recessive constituent of his germ plasm, and thereby be capable of procreating healthy children. On the other hand, the person under consideration may appear to be normal, and yet because

he carries the disease as recessive may procreate diseased children. In either one of these instances all of the children would not be diseased, presuming there were several of them, so that the question would develop itself into one of proportion in any event. It will be seen, also, that a diseased individual may mate with a normal one, and even if the disease be dominant may have a certain proportion of normal[1] grandchildren, while if the disease be recessive the children will all be free from disease, though carrying the disease as a recessive.

Certain other conclusions follow: If both parents are free from the disease (homozygous) all the children will be free from the disease, while if both parents have the disease (homozygous) all the children will have the disease. If both parents are well and have all well children, then at least one of the parents is free from disease. In cases in which a diseased person mates with a well person and half of the children are diseased, then one of the parents must have been heterozygous, while if one parent is diseased and the children are well, the other parent must have been homozygous. If two normal parents have the proportion of one sick child to three well children, then both parents must have been heterozygous. If one sick parent and one well parent have half the children sick and half well then one of the parents must have been heterozygous Individuals may appear to be identical and yet have quite different gametic constitutions as shown by the descendants, and, on the contrary, individuals may have identical gametic constitutions and still come from parents that differ. With reference to a dominant character, once it disappears it cannot return. An individual who has not the characteristic cannot transmit it.

Complications.—So far the hypothesis is relatively simple, but there seem to be reasons for supposing that dominance and recessiveness are only relative terms, and that a condition which is dominant at one time may be recessive at another, or, to put it more accurately, a character which is dominant over certain characters may be recessive with reference to certain other characters. And then we have the phenomena of sex-limited inheritance in which we see a character that is, for example, dominant in the male, recessive in the female. This shows well in hemophilia, in which the males only are affected, but the disease is transmitted through the females who themselves do not suffer from it.

It is also found that characters differ in accordance as to whether the inheritance has been simplex or duplex. For example, if a red and a white four-o'clock (Mirabilis jalappa) are mated the result is neither a red nor a white flowering plant, but a pink flowering plant. When these pink flowering plants are crossed, or four plants produced, one will be red (duplex), two will be pink (simplex), and one will be white (nulliplex).

Not infrequently a simplex determiner is slow to develop and thus fails of reaching that stage of development which would take place if

[1] Even some of the children may be normal if both parents are heterozygous (see Fig. 6).

the inheritance were duplex. This condition is spoken of as the *imperfection of dominance.*

Another matter which has to be borne always in mind is the fact that characters often go together so that we have the inheritance of a group of characters rather than of a single one. For example, the color of the eye and the presence or absence of curliness of the hair may be associated.

Difficulties, Limitations, and Objections.—I have given thus far a statement of the Mendelian hypothesis. It must not be forgotten however, that this is only an hypothesis and that it does not stand unchallenged as an explanation of the phenomena of inheritance. It is undoubtedly true that the Mendelian proportions are, as a matter of fact, found, but that they are always found and that the reasons for their existence are based upon the existence of compound allelomorphs, unit segregation, gametic purity, dominance, and recessiveness, is a matter for the future to decide. It is, therefore, fitting to point out some of the difficulties which one must encounter if he endeavors to apply this hypothesis and to sound a word of caution against an endeavor to make the facts fit the hypothesis rather than the hypothesis fit the facts.

In the first place this hypothesis has been worked out as the result of laboratory experiment largely with flowers or with lower animals which multiply rapidly and have a progeny that go through the cycle of their individual existence in a comparatively short time. The situation with reference to man is quite different. The number of progeny in man is limited. While we have seen that the minimum number of progeny for working out the Mendelian proportions to the best advantage is four, we are constantly confronted with families with but a single child, so that unless we could be sure that both parents were homozygous it would be impossible to predict what their child was going to be.

Then again in the human female we are constantly meeting with miscarriages. These miscarriages are impossible to evaluate. They cannot be given a place in determining the Mendelian proportions.

And finally, many diseases, for example, paralysis agitans, Huntington's chorea, multiple sclerosis, develop relatively late in life, and children who die from some accident or infection previous to the period in which these diseases develop are in the same position as the miscarriages and cannot be given a place in determining the Mendelian proportions. These are practical difficulties in dealing with the human animal and constitute limitations in the application of the hypothesis. In this way it will be seen that by constructing elaborate family trees reaching back through several generations that it may not infrequently be possible to trace a bad strain and see its culmination in certain individuals; but that is a very different matter from predicting what the next generation is going to show. It is the difference between explanation and forecasting.

Another difficulty in the application of the Mendelian hypothesis is that there seems to be no way of properly evaluating all of the constituents of the germ plasm. We deal with a single disease, for example, and can trace it back through the ancestors, but we are apt to omit from a consideration of the next generation the various possible combinations of determiners other than the determiners of this particular disease. We might perhaps with reference to a disease such as hemophilia or night blindness predict that the children of a certain pair would be free from these disorders and yet be confronted by a child that was an idiot. This is an extreme illustration, but it is only given to show that we should not be blind to other conditions presented by the individual than the particular one that may be under the focus of our attention.

Galton's law of filial regression takes into consideration the total content of the germ plasm with reference to any particular character; more especially he considered it with reference to stature. This law sets forth that any variation from the mediocre tends to be wiped out. Thus if one man is extraordinarily tall his descendants tend to be shorter, while if he were extraordinarily short his descendants would tend to be taller, so there is a constant drag back to the type. More recent analysis of questions of stature, however, indicate that stature is perhaps not a unit character, that we must take into consideration the several parts of the body, the height of the cranium, the length of the neck and trunk, and the length of the legs, and we find upon further investigation that the height, to a certain extent, is a function of age, and that again it is also a function of sex. And so it would be with most any of the characters that have been investigated in the past, such, for example, as artistic and musical ability. The more carefully we study them the more we find they may be split up, and still further split up until after all we are about as far from defining what a unit character is as we are from telling what the difference is between an inherited and an acquired character.

One of the constituents of inherited complexes appears to be fertility. Karl Pearson has formulated the following law of *fertility:* "Fertility is not uniformly distributed among all individuals, but for stable races there is a strong tendency for the character of maximum fertility to become one with the character which is the type." With reference to man statistics indicate that less than one-quarter of one generation by reason of their fertility produce more than one-half of the next generation, and so there is a constant tendency on the basis of this law of *genetic fertility* to keep the race uniform by limiting the variations, the most typical members of a race thus becoming the most numerous.

All these refinements, however, should not blind us to the simple, practical issue, that we are to observe facts as we find them, and even though we may be able to sit down and analyze musical ability into any number of component parts, still if our family trees show families in which musical ability seems to come down through the generations,

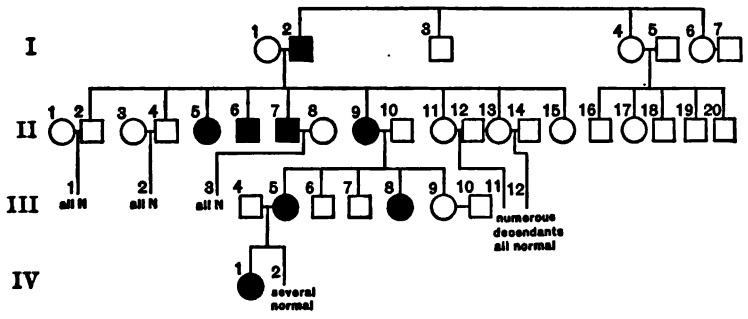
either represented by a considerable number of individuals or by individuals of very great ability, we must not be blind to that fact.

The question of dominance and recessiveness is also open to the possibility of a great deal of adverse criticism. We find, as already noted, that a character that is at one time dominant is at another time recessive, and that sometimes instead of a character of either parent being reproduced an ancestral character that was common to both appears. Dominance may also apparently be influenced by environment, by the sex, as already indicated, perhaps also by race, etc. So that some people are inclined to disbelieve entirely in the Mendelian hypothesis of dominancy and recessiveness and to believe that all the characters come down in the germ plasm, but that they may be either *patent* or *latent*. Whether a character is latent and may be called out by some change in environment or whether the explanation must rest in the imperfection of dominance is a question to be decided.

INHERITANCE IN NERVOUS AND MENTAL DISEASES

Under this heading I shall endeavor to give briefly the present status of the question of heredity in some of the different better known forms of nervous and mental diseases and allied conditions. What has gone before must be borne in mind, but particularly what has been said with reference to simplex and duplex inheritance, sex-limited inheritance, and the Mendelian proportions.

FIG. 8

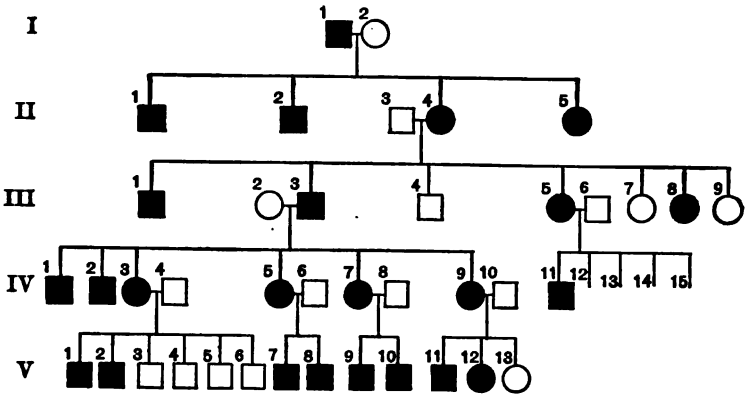


Pedigree of a family showing Huntington's chorea. Affected persons (indicated by black symbols) are always derived from affected parents. From original data furnished by Dr. S. E. Jelliffe; Smi family. (Taken from Davenport.)

Huntington's Chorea. — Figs. 8 and 9 are the pedigrees of two Huntington's chorea families. It will be seen from a study of these pedigrees that each patient descended from a mating, one party to which was affected, so that every patient had at least one affected parent. What is still more important is that in no instance in which a person free from the disease mated with another person free from the disease

did the disease appear in the progeny, so that if in a given generation there are no cases of Huntington's chorea none can develop thereafter unless, of course, the individuals marry persons afflicted. So that we see this disease follows the rule of dominant inheritance, once free always free. The obvious way in which this disease can be eliminated is for those who suffer from it not to have children. Of course, if a choreic marries a healthy person all of the children will not necessarily be choreic.

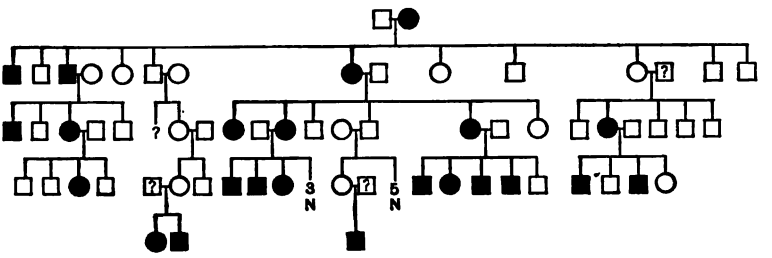
FIG. 9



Pedigree of a family with Huntington's chorea. All affected persons (black symbols) have at least one affected parent. Hamilton, 1908, p. 453. (Taken from Davenport.)

Friedreich's Disease.—Fig. 10 is the pedigree of a case of hereditary ataxia worked out by Mott. This pedigree shows the presence of the

FIG. 10

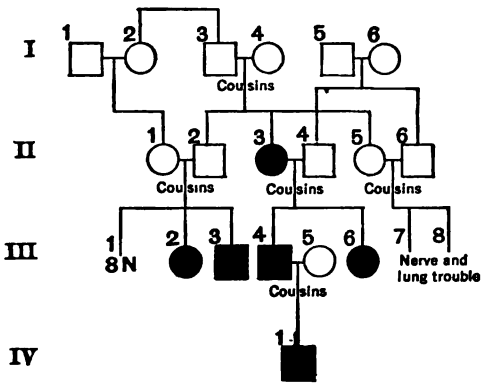


Pedigree of a family with hereditary ataxy (black symbols). Consorts not in direct line mostly unknown. Note that affected persons have (for the most part) one affected parent; the trouble is due to the presence of some positive character. Mott, 1905. (Taken from Davenport.)

disease in each of the five generations indicated, both males and females being affected, and it also shows the disease present in the descendants of normals. This latter fact would indicate that

it was due to a defect in the germ plasm, as this is a characteristic of recessive and not dominant traits.

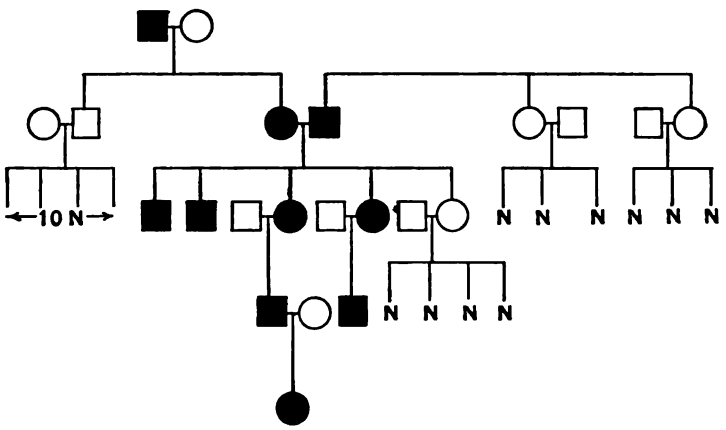
FIG. 11



Pedigree of Thomsen's disease. Appears in cousin marriages even from unaffected parents; hence due to a defect. Bernhardt, 1885. (Taken from Davenport.)

Thomsen's Disease. — Fig. 11 shows a pedigree in Thomsen's disease. This pedigree shows particularly a striking appearance of the disease from the matings of cousins even when the parents are unaffected.

FIG. 12



Pedigree of a family of tremblers. Affected persons (black symbols) are derived from at least one affected parent, and two normal parents have only normal offspring. Trembling is thus due to the presence of a special character. From Debore and Renault, 1891. (Taken from Davenport.)

Familial Tremors.—Fig. 12 shows a pedigree of a family of tremblers. It shows also that normal persons always produced normal offspring, and when there were abnormal offspring one of the parents at least was affected. This indicates that the disorder is a dominant.

Muscular Atrophies, Dystrophies, etc.—Fig. 13 gives a pedigree in a family affected with muscular atrophy. Only males are affected, although unaffected females are able to transmit the disease. This "Knight's move" transmission is indicative of a recessive character.

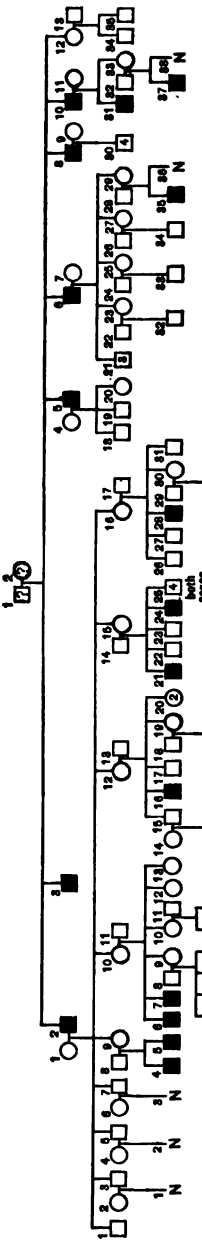


FIG. 13

Pedigree of muscular atrophy in Sear-Facer family, of England. *I*, 2, said to have been crippled; *II*, 2, was affected in arms and legs and died at seventy of apoplexy; none of his children were affected but several of his grandchildren were; *IV*, 4, died of consumption, hands affected; *IV*, 5, had progressive weakness in legs and wasting in hands; *IV*, 6, has weakness and wasting in appendages; *IV*, 7, at twenty years, feet getting bad; a son of *IV*, 9, is weak on his feet at six years; the legs of *IV*, 17, began to waste at ten, hands now getting weak; one of the five children of *IV*, 19, is badly affected at twelve years; *IV*, 21, disease began at twenty-one, feet arched; *IV*, 24, at sixteen years, legs much wasted, feet much arched, walking difficult. Males only affected and only when they are son of unaffected fathers and simplex mothers; *IV*, 36, represents four normal persons. The other black symbols stand for affected persons, of whom no further details are given. Herringham, 1888. (Taken from Davenport.)

Aplasia Axialis Extracorticalis Congenita.—Merzbacher has reported a familial form of hereditary disease to which he has given the name aplasia axialis extracorticalis congenita. The disease is characterized by horizontal nystagmus, bradylalia, disturbances in the succession and the coördination of movements, ataxia and intention tremor, associated movements, mask-like facial expression, paresis of the back, pelvic, and abdominal muscles, paralysis, and spastic contractures of the lower extremities, increase of the patellar tendon reflexes, Babinski sign, failure of the abdominal reflexes, with accompanying symptoms of trophic disturbances in the joints, vasomotor disturbances in the lower extremities, and failure in the psychic powers.

Hereditary Abiotrophies and Other Diseases.—Hereditary forms of *spastic paraplegia, myatonia congenita, pseudohypertrophic muscular paralysis, progressive muscular dystrophy,* especially the Landouzy-Déjerine *facio-scapulo-humeral* type and the *neuritic type* of progressive muscular atrophy have been described and also *family periodic paralysis.* These conditions due to defects supposedly in the neuromuscular systems involved have been described by Gowers as *abiotrophies.* Diseases of the thyroid are also undoubtedly hereditary as *exophthalmic goitre* and *cretinism.*

Hereditary edema of the legs, or disease of Milroy, has also been described. In these cases there is a history in the family of other nervous troubles, such as epilepsy, and the disease presents certain similarities to Raynaud's disease, urticaria, and angioneurotic edema, and is supposed to be due to the same common pathological cause—namely, a vasomotor neurosis.

Syndromes of Massalongo.—Massalongo has grouped all these familial conditions under nine syndromes.

1. **The Ataxic Syndrome,** including hereditary ataxia or Friedreich's disease and the cerebellar form of Marie; amyatrophy (Charcot-Marie); interstitial hypertrophic neuritis of Déjerine-Sottas; classical familial tabes of Duchenne (?).

2. **Spasmodic Syndrome,** including familial spasmodic paraplegia; familial amyotrophic lateral sclerosis; familial cerebellar atrophy of Bourneville and Crouzon; and familial cerebral diplegias.

3. **Amyotrophic (and Myotonic) Syndrome,** including progressive amyotrophy and familial myelopathy; progressive neuropathic familial amyotrophy; progressive myopathic amyotrophy; congenital myotonia or Thomsen's disease and familial paramyatonia of Eulenburg.

4. **Myoclonic Syndrome,** including chronic hereditary chorea of Huntington; Parkinson's disease; senile familial tremors; familial myoclonias; familial tics; and essential familial tremors.

5. **Paralytic (and Myasthenic) Syndrome,** including amaurotic family idiocy or Tay-Sachs disease; familial syringomyelia; congenital familial hydrocephalus of Mya; progressive familial infantile bulbar paralysis; nuclear atrophy infantile and familial; familial ptosis; familial peripheral facial paralysis (?); spinal familial infantile paralysis; transitory familial paraplegia of Lenoble; periodic paresis of Oddo and Audibert;

familial myasthenia, or Erb's disease; congenital myatonia, or Oppenheim's disease.

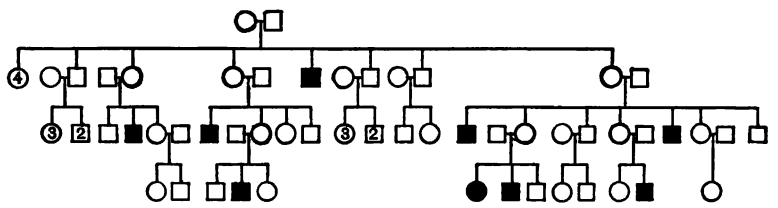
6. **Trophovasomotor Syndrome,** including familial scleroderma; Dupuytren's disease; familial dermatoneurosis (ichthyosis, precocious baldness, etc.); acute periodic familial edema, or disease of Quincke; chronic familial edema, or trophedema, or Meige's disease; symmetrical familial lipomatosis; Raynaud's disease; familial acroparesthesia and erythromelalgia; familial polyuria, hematuria, and diabetes; infantilism and giantism; Basedow's disease and familial acromegaly.

7. **Sensory Syndrome,** including familial papillary atrophy; essential familial atrophy of the optic nerve; Daltonism or familial dyschromatopsia; congenital word blindness; familial strabismus; congenital cataract; familial deafness; deaf-mutism; congenital word deafness; congenital colored hearing, and familial sensory idiosyncrasies.

8. **Neurotic Syndrome,** including epilepsy, hysteria, Sydenham's chorea (?), and neurasthenia; familial puerperal and infantile eclampsia; familial infantile convulsions; simple or ophthalmic migraine; familial essential bronchial asthma; incontinence of urine; familial merycism or rumination; essential familial paroxysmal tachycardia; familial and precocious fatal syncope; familial spasm of the glottis; writer's cramp; stammering.

9. **Psychic Syndrome,** including hereditary insanity; periodic familial psychoses: dementia præcox; familial general paresis and idiocy.

FIG. 14



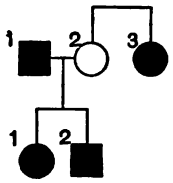
Part of Eichold-Fleming-Stossel-Herzer, showing multiple sclerosis (black symbols). One notes the skipping of a generation (indicating a recessive trait). The trouble is usually carried by unaffected females (heavy circles) and appears in their sons. Interesting because same family was independently noted by two neurologists. Pelizaeus, 1885; Mersbacher, 1909. (Taken from Davenport.)

Multiple Sclerosis.—Fig. 14 is a pedigree of this disease. Although this disease has not ordinarily been considered to be hereditary this pedigree shows its presence in three successive generations. The principal point of interest in this pedigree is that it is shown that the disease is transmitted through unaffected females. If the indications of this table are correct unaffected females who have brothers afflicted may transmit the disease.

Cerebral Palsy of Children.—Fig. 15 is the pedigree of a man with cerebral diplegia who married a woman who had a sister similarly affected. Although all the children (two) of this union were affected the pedigree is not sufficiently extensive to mean very much, but it

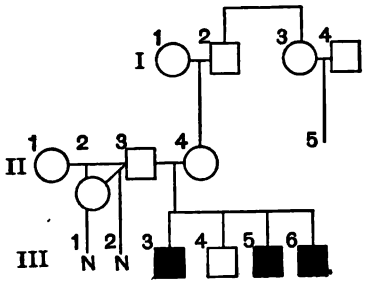
indicates the possibility that this disease, which ordinarily would not be considered to have any hereditary bearings, may have them. Fig. 16 is a somewhat more significant pedigree, as it shows the pedigree of a man who was three times married. By his first two wives he had normal children, but his third wife who was normal had a first cousin with cerebral diplegia. He had four sons, of whom three were afflicted with the disease.

FIG. 15



Illustrates the pedigree of a man who now has cerebral diplegia who married a woman who had a sister similarly affected. Both children are affected. Pelizaeus, 1885. (Taken from Davenport.)

FIG. 16



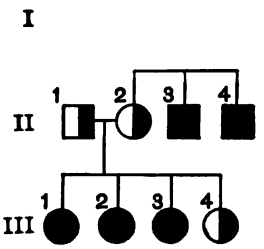
Pedigree of a family with cerebral diplegia. The father in the central mating, *II*, 3, has been three times married. By two of the marriages he had only normal children, but by the third (to a normal woman who had a first cousin, *II*, 5, with cerebral diplegia) he had four sons, of whom three were affected with this disease. The eldest, *III*, 3, was normal until sixteen months old, then had general convulsions, after which spastic symptoms gradually appeared, becoming pronounced later. Now he can walk only a few steps, and is quite idiotic. The third son was normal until two years old, but is now deteriorating after an attack of measles, and the youngest, only two years old, has just become diplegic and epileptic. Dercum, 1897. (Taken from Davenport.)

Cerebral Hemorrhage, Cerebral Arteriosclerosis, and Senility.—Fig. 16 shows the pedigree of a family in which there was a high incidence of cerebral apoplexy. Such pedigrees as this, especially when somewhat more extensive, lead to the conclusion that the different systems of the body may be inherently strong or weak, that vessels may be inherited that break down under strain early in life. This, I think, is a fairly common observation. The pedigrees bear out this conclusion, as shown in Fig. 17.

The bearing of the fact of the inheritance of weak vessels upon mental conditions is very evident. Cotton has recently worked out a series of pedigrees which indicates that cerebral arteriosclerosis has an

especially high incidence in certain families and that also associated with this condition there is a high incidence of senile dementia. In these families side by side with persons who reached advanced age without deterioration and were normals there were other cases in which mental deterioration was marked. It either came on early or required institution care or was recognized by the community. The close relationship between senile deterioration and cerebral arteriosclerosis is well known. Their differentia are not so well known, and in these tables of Cotton's there is no effort made, because of the inaccessibility to the data, to differentiate between cases of pure senility and cases of arteriosclerosis.

FIG. 17

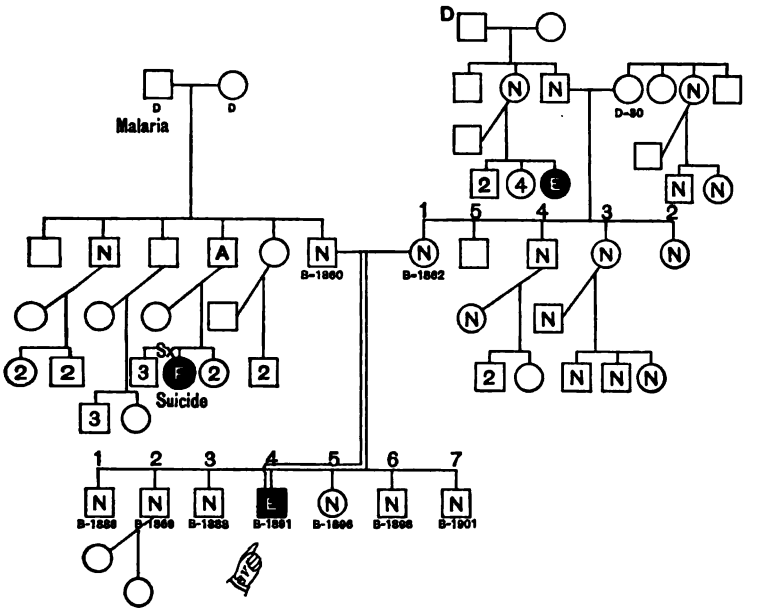


Pedigree of a family with high incidence of cerebral apoplexy. The father and mother, *I*, 1 and 2, both have apparently a tendency toward cerebral congestion. *I*, 2, had recently had an attack which was relieved by nasal hemorrhage. Two of the mother's brothers, *I*, 3 and 4, died after a brief attack of apoplexy. Three of the daughters have died of the same disease at thirty-two, thirty, and forty-six years respectively; the remaining suffers from cerebral congestion. Harrington, 1885. (Taken from Davenport.)

Epilepsy.—The central fact in regard to certain epilepsies appears to be that they may be due to a lack of some factor in the germ plasm. It is also significant that they act very much like feeble-mindedness, and that in many pedigree charts epilepsy and feeble-mindedness appear to be interchangeable terms.

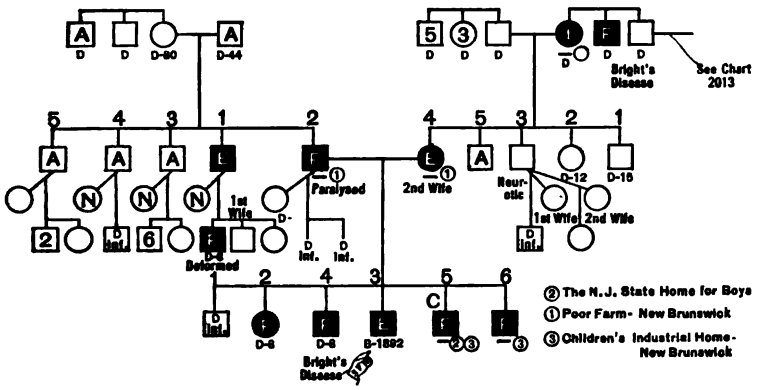
In addition to these facts it is to be noted also that in the pedigrees of certain epileptics there frequently occur individuals tainted in various sorts of ways. It would appear from this that we are dealing with conditions of defect in the germ plasm which may manifest themselves differently in different individuals. This principle will be referred to from time to time in other connections. Fig. 18 illustrates it very well. This shows the mating of two normal persons who had seven children, six of whom were normal but one was epileptic. It is plain, however, from a study of the pedigree that both parents undoubtedly bore tainted germ plasm. On the female side there is one case of epilepsy, while on the male side there is one case of feeble-mindedness. Fig. 19 shows the pedigree of a feeble-minded man and an epileptic wife. Of six children one died in infancy, four were feeble-minded and one epileptic. A recent extensive study of the inheritance in epilepsy

FIG. 18



The central mating is that of two normal parents, both of whom belong to stock that shows evidence of being neuropathic. Doubtless some of the germ cells of both parents are defective in mental strength. Along with six normal children appears one epileptic. *A*, alcoholic; *B*, blind; *B* (below), born; *D*, deaf; *D* (below), died; *E*, epileptic; *F*, feeble-minded; *N*, normal; *Sx*, sex offender. *SV* in the [redacted] means an inmate of a State Village for Epileptics. David F. Weeks. (Taken from Davenport.)

FIG. 19



The product of a feeble-minded man (who has an epileptic brother) and his epileptic wife (whose father was insane and uncle feeble-minded); the first child died in infancy, the next two were feeble-minded and died young, the next is an epileptic at the New Jersey State Village; the next is feeble-minded, has a criminal record, and is in the State Home for Boys; the last is feeble-minded and is in the Children's Industrial Home. Six in this family have been or are wards of the State. *A*, alcoholic; *C*, criminalistic; *D*, deaf; *E*, epileptic; *F* feeble-minded; *I*, insane; *N*, normal. *SV* in the [redacted] means an inmate of a State Village for Epileptics. David F. Weeks. (Taken from Davenport.)

has been made by Davenport and Weeks and their conclusions from a very large material are worth noting. They are as follows:

1. Epilepsy and feeble-mindedness show a great similarity of behavior in heredity, supporting the hypothesis that each is due to the absence of a protoplasmic factor that determines complete nervous development

2. When both parents are either epileptic or feeble-minded all their offspring are so likewise.

3. The conditions named migrain, chorea, paralysis, and extreme nervousness behave as though due to a simplex condition of the protoplasmic factor that conditions complete nervous development; that is, persons belonging to these classes usually carry some wholly defective germ cells. Such persons may be called "tainted."

4. When such a tainted individual is mated to a defective, about one-half of the offspring are defective.

5. When a simplex normal is mated with a defective, about half the offspring are normal; the others defective or neurotic.

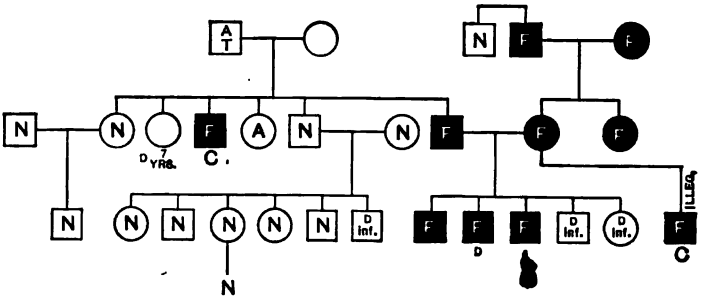
6. When both parents are simplex in nervous development and "tainted," about one-quarter (actually 30 per cent.) are defective.

7. The proportion of tainted offspring is not noticeably higher when both parents show the same nervous defect.

8. Normal parents that have epileptic offspring usually show gross nervous defect in their close relatives.

9. While we recognize that "epilepsy" is a complex, yet there is a classical type numerically so preponderant that, in the mass, "epilepsy" acts like a unit defect.

FIG. 20



Pedigree chart illustrating the law that two defective parents have only defective children. *A*, alcoholic; *C*, criminalistic; *d*, infant, died in infancy; *F*, feeble-minded; *N*, normal; *T*, tubercular. Goddard, 1910. (Taken from Davenport.)

Feeble-mindedness.—As has already been stated under epilepsy, feeble-mindedness also acts as if it were due to a defect in the germ plasm. This is indicated by Fig. 20, in which the matings of two feeble-minded persons produce children all of whom are feeble-minded. Both parents having defective germ plasms the children must of necessity also present the defect.

In these questions in which matters of defect in the germ plasm are

under consideration the matter of *consanguineous marriages* becomes of great importance. Though one or both of the partners may be apparently normal they may be the carriers of defective germ plasms, and as their relationship makes it probable that the defect will be of the same character in both cases the chances of the union of the two defects is greatly enhanced.

Mental Disorders.—The recent work that has been done in mental disorders has been grouped under an effort to define the hereditary characteristics of insanity, insanity being used in a generic sense in the same way that Davenport has used the word epilepsy. It must be recognized that insanity is a term that does not apply to any special disease, or, in fact, to any single condition, but is rather a social term signifying that general class of mental disorders which lead to commitment. Still the investigators have assumed that among this large heterogeneous class there are enough similarities to warrant grouping them together. The work of Rosanoff and Orr is the most extensive research that has been done in this country, and a review of this work will give the present status of the situation.

The material for these studies comprised 72 families representing 206 different matings, with a total of 1097 offspring. The conditions investigated were the endogenous ones only, all cases of distinctly exogenous origin being excluded for purposes of simplifying the problem.

From a study of this considerable material the investigators concluded that the integrity of the nervous system was dependent upon not one, but many unit characters, which has been found to be the case with reference to other hereditary traits, and that the various forms of mental disease were due to defects in the germ plasm or absence of the determiners for one or more of these traits. In this way the fundamental condition from which mental disorder might originate was defined as the *neuropathic constitution*, and it was found that many clinical types might result from matings in which this constitution figured. So that we have the phenomenon of *dissimilar heredity*, with which we have already become familiar in dealing with epilepsy and feeble-mindedness. On the basis, then, of this neuropathic character a study of the material showed that of the total number of offspring 351 were neuropathic while the calculation on the basis of the Mendelian proportions indicated a theoretical expectation of 359. Of the total number of offspring the actual number that were normal was 586, while the theoretical expectation was 578. This will be seen to be a remarkably close approximation as between the actual findings and the theoretical expectations.

In order to reach these results, however, the Mendelian theory as heretofore set forth has had to be complicated not only by this conception of dissimilar heredity, but also by the conception of *degrees in recessiveness*. For example, certain neuropathic traits while they may be recessive as compared with the normal, may at the same time be dominant over other neuropathic traits which in turn are relatively

of a more pronounced degree of recessiveness. As, for example, certain acute recoverable psychoses are dominant over epilepsy which we have seen is probably a recessive. If we will represent recessiveness by *R* and a more pronounced degree of recessiveness like epilepsy by *r*, this matter of degrees in recessiveness is illustrated, by the authors, by the following four cases.

The first case, a manic-depressive man, belonging to a family heavily tainted with the manic-depressive psychosis, mates with a normal woman who, however, carries the taint of epilepsy. This mating may be represented by $RR \times Dr = DR + Rr$. This indicates that the offspring from such a mating would be either normal or manic-depressive, but not epileptic. As a matter of fact there were six children, three normal, one manic-depressive, and two died in childhood.

The second case is that of the mating of a normal man whose mother suffered from a psychosis of the nature of hysteria, with an epileptic woman whose father was an epileptic. This mating would be represented by $DR \times rr = Dr + Rr$. The offspring from such a mating may thus be either normal or have a recoverable psychosis resembling hysteria, but not epileptic. As a matter of fact there were six children from this union, of whom two died in infancy, two were normal, one was manic-depressive, and one "very nervous," but none were epileptic.

The third case is the union of a man with recurrent melancholia and insomnia, whose father had senile deterioration, with a normal woman of tainted stock with one brother and one sister who had had convulsions in childhood. This mating may be represented by $RR \times Dr = DR + Rr$. Of the four children one died in childhood, one was normal, one was manic-depressive, and the remaining one was easily excited and of nervous temperament, but none had convulsions or epilepsy.

The fourth case is the union of an epileptic man, coming from a family tainted with epilepsy, with a woman who suffered from recurrent attacks of depression with insomnia. This mating may be represented by $rr \times RR = Rr$. In other words, the offspring from this mating should all be neuropathic, suffering from a recoverable psychosis, but not from fainting spells or other epileptic manifestations. There were seven offspring from this union. One died in childhood, three were normal, being between fifteen and twenty-two years old—probably below the age of incidence—and the remaining three suffered from recoverable psychoses, but not from epilepsy.

Transmission of Neuropathic Constitution.—The conclusions of Rosanoff and Orr indicate that the neuropathic constitution is transmitted in accordance with the Mendelian proportions. I will quote their conclusions *in extenso:*

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition. Rules of theoretical expectation are accordingly as follows:

(*a*) Both parents being neuropathic, all children will be neuropathic.

(*b*) One parent being normal, but with the neuropathic taint from one grandparent, and the other parent being neuropathic, half the children will be neuropathic and half will be normal but capable of transmitting the neuropathic make-up to their progeny.

(*c*) One parent being normal and of pure normal ancestry and the other parent being neuropathic, all the children will be normal but capable of transmitting the neuropathic make-up to their progeny.

(*d*) Both parents being normal, but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

(*e*) Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal, half of them will be capable, and half not capable of transmitting the neuropathic make-up to their progeny.

(*f*) Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny.

2. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

3. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness varying in their clinical manifestations with the personality of the subject, environmental conditions, etc.

4. All the neuropathic children that result from a mating of the fourth type (both parents normal, but each with the neuropathic taint from one grandparent) can have theoretically only equivalent defects and not defects of different degrees of recessiveness.

5. Among the actual results from such matings the following have been me with:

(*a*) Brothers and sisters suffering from clinically identical neuropathic manifestations.

(*b*) Psychosis in one subject and peculiar or abnormal disposition, but no actual psychosis, in brothers or sisters.

(*c*) Psychosis in one subject and isolated but clinically related symptoms in brothers or sisters; we find with particular frequency dementia præcox equals fainting spells or convulsions in childhood.

(*d*) Psychoses clinically not known to be related: senile deterioration equals peculiar hysteriform psychoses.

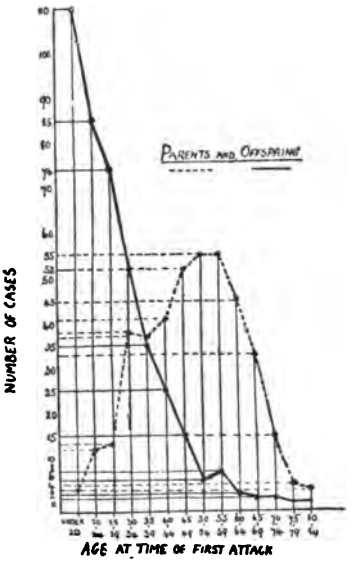
6. Neuropathic conditions show only in about one-fourth of the cases indications for commitment to sanitariums or public institutions. The total incidence or neuropathic conditions may be roughly estimated as affecting between 1.5 and 2 per cent. of the general population.

7. It is further estimated that about 30 per cent. of the general

population, without being actually neuropathic, carry the neuropathic taint from their ancestors and are capable under certain conditions of transmitting the neuropathic make-up to their progeny.

The law of earlier inheritance of mental diseases by the offspring has been commonly accepted for a considerable time. It has been worked out statistically and diagrammed most excellently, however, by Mott. It is called the *law of anticipation.* This law is to the effect that the offspring are affected earlier in life than the parent, generally very much earlier, and in accordance with Mott's results approximately, on the average, at half the age of the parent (Fig. 21).

FIG. 21



He found only one instance in 420 pairs of parent and offspring in which the attack occurred earlier than in the parent. In over 50 per cent. of his cases the child became insane twenty-five years earlier than the parent. In this relationship he sees evidences of an intensification of the mental defect which accounts for the large proportion of the children of the insane who are imbeciles or become insane during adolescence. He thinks, therefore, if Nature were left to herself she would tend to spontaneously eliminate all such bad stocks so that there would be a complete destruction, a regression to the normal after three generations unless further unsound elements were introduced by bad matings. He thinks, too, that there is a tendency for the determiners of insanity to coalesce or chrystallize out of an unsound stock, and that this explains why one or rarely more than two children of an insane parent become insane.

Heron has shown statistically that the liability to insanity in children from insane stock is greatest among the earlier born and falls off rapidly, particularly after the fourth child.

Pauperism, Criminality, Prostitution, etc.—All of these conditions show tendencies to frequently repeat themselves or to substitute one for another in the same family tree. In the noted Jukes family almost all of the members were criminals, paupers, or prostitutes, while in many of the pedigrees feeble-mindedness, alcoholism, sexual immorality, and tuberculosis are also interspersed. In the main these conditions may be considered as all due to defectiveness in the germ plasm.

Exogenous Conditions.—It must not be lost sight of that the hereditary factor should be considered even in dealing with exogenous conditions, even with external factors, such as infections, that are generally considered to be largely accidental. These matters have not as yet been worked out but the heredity viewpoint should not be lost sight of.

As already indicated, the obvious causes of alcoholism may be multitudinous, but the reasons why one individual placed under conditions of temptation becomes a slave to this drug while another person is not influenced by it, and a third perhaps after a temporary yielding gives it up, may be conceived to depend upon certain inherent traits, while again the reasons why one alcoholic develops a Bright's disease, another a cirrhosis of the liver, and a third a multiple neuritis, with perhaps a Korsakow's psychosis, certainly cannot be dependent solely upon the alcohol, and we should be taught by such results never to lose sight of the part that the make-up of the individual plays in the resulting reaction.

Many individuals throughout the community suffer from infectious diseases such as typhoid and pneumonia. Only a certain few, however, develop a psychosis as a complication. The reason for this must again be sought in the individual rather than in the infection, while it is a notorious fact that only a small proportion of syphilitics develop paresis.

THE INFLUENCE OF THE ENVIRONMENT

Eugenics must not be conceived of as dealing solely with heredity. Galton has defined eugenics as "the science which deals with all influences that improve the inborn qualities of a race; also with those that develop them to the utmost advantage."

A criticism has been launched against the eugenists that they do not give the factor of environment sufficient weight and that, therefore, their whole attitude is too pessimistic. From time to time I have indicated my opposition to this viewpoint, which is more especially summed up in the general statement that an individual is the result of two complexes of tendencies, those that are inborn and those that influence him from without.

If the whole problem of the individual rested in the nature of the germ plasm from which he developed, and environment had no part

whatever to play, then all effort from a therapeutic standpoint would be *nil*. We know, however, that this is not the case. We know how certain psychogenic psychoses, for example, hysteria, are dependent for their development upon definite psychic trauma, and how it is possible by a careful psychoanalysis of such a case to effect a cure. A single instance of this sort is enough to negative the theory that the environment plays no part, and to inject an attitude of optimism into the problem of eugenics. There must be all degrees of departure from the normal, and while the more pronounced degrees, such as are represented in the epilepsies and various grades of feeble-mindedness, are relatively incapable of any material amelioration, the less pronounced degrees, such as hysteria, may be cured; while it remains to be seen whether many intermediate defects, as, for example, dementia præcox, may not be not only favorably modified by treatment after the disease has developed, but perhaps prevented from proceeding to their logical conclusions by early recognizing the danger signals and so arranging the environment as to present a minimum of possibilities of deleterious action. This in fact has been accomplished with reference to tuberculosis, and not only can mild conditions of tuberculosis be cured, but predisposed individuals if removed from the possibilities of infection may lead useful and efficient lives.

Attention has already been addressed to the phenomena of imperfection of dominance as making for the theory of patency and latency as opposed to that of dominance and recessiveness. The same thing may be said of degrees of recessiveness. Here again it is equally possible to conceive of degrees of latency and to look upon the results as being dependent upon the influence of the environment in causing one rather than another of the latent tendencies to become actual. Galton's laws of ancestral inheritance and filial regression may also be considered in the same way, though, of course, these laws are not necessarily antagonistic to the Mendelian hypothesis. This again leads to the broader conception of *development* rather than of *inheritance*. The conception of characters as being independently developed instead of being independently inherited. In any instance, at the risk of repetition, I bespeak again a strict sticking to the facts and following them no matter where they lead, whether they support any particular theory or not, and utilizing the various hypotheses merely as tools to work with among the facts and as convenient symbols to enable us to think of them.

The hypotheses that have been erected to account for evolution should be considered judicially and the truth in each of them realized by taking the viewpoint of the theory. The Lamarckian hypothesis supposed that structures came into existence or went out of existence by the results of use or disuse and that the effects in either case were transmissible by inheritance. The Neo-Darwinians explain the effects of use and disuse only as bringing out or suppressing certain potentialities. The muscles of the blacksmith's arm grow larger by use, but they could not grow larger as a result of use if there was not resident

within them the potentiality to increase in size, and it is this potentiality, the Neo-Darwinians would say, that is passed on in the germ plasm and nothing more. Such changes as the growth of the muscles of the blacksmith's arm, however, should not be lost sight of as evidencing the very material way in which the individual may be influenced.

Natural selection takes place only in the face of selective agents which are widely distributed and lethal. A disease to which any given portion of the human race is pretty generally exposed either kills off everybody or else a certain proportion who are subjected to it live, and these are the selected ones who possess some quality that makes them able to withstand the disease. These people breed and reproduce their kind. All those who were susceptible to the disease were killed off, and the result is a race for whom the ravages of this particular disease have no terrors. This is the method of operation of natural selection by the survival of the fittest.

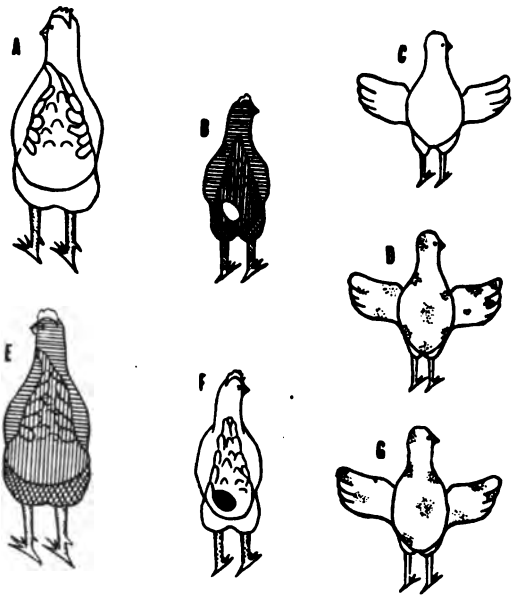
The phenomena which are explained by imperfection of dominance, patency, and latency, and degrees of recessiveness have been explained by Weismann by transferring this struggle for existence from the environment, where it is usually thought of, to the determiners within the germ cell. And his theory of *germinal selection* is that the various determiners of the germ cell are not all placed in exactly the same relations to the stream of nutriment, that the imbalance thus created tends to increase, those that gain a slight advantage by virtue of that very advantage gaining greater advantages, and obversely for those that are placed at a disadvantage.

The same conception has been formulated with reference to all of the parts of the body, more particularly by Roux. The several portions of the individual may be considered to be in conflict with one another, so that so far as any one portion of the body is concerned all of the other portions are environmental. The conception of environment, therefore, becomes broadened and is a conception which must vary with each particular thing about which we are considering the environment. Correspondingly as the environment is made to include the body itself we see the possibilities of influencing the individual through bringing about changes in this environment.

We are constantly confronted by the question of what shall be considered environment and how the environment may affect the germ plasm. We have already discussed this with reference to the presence of toxic agents in the body and their possible influence upon the germ plasm. The experiments of Guthrie (Fig. 22) indicate that aside from such extreme conditions as this that the soma cells themselves may in some unknown way exercise an influence upon the germ cells. His experiment was briefly as follows: Into a homozygous black hen, which had been castrated, he transplanted a fertilized egg from a homozygous white mating, and into a homozygous white hen, which had been castrated, he transplanted a fertilized egg from a homozygous black mating. Some of the progeny in both instances were white flaked with black.

Aside from this general proposition it has been fairly definitely established by the principles hereinbefore set forth that diseases that come down in the germ plasm may be bred out of the stock. It is a popular belief that there are no forces working for the improvement of the stock in which an inherited disease exists. This is not so. For unless there were the inherited defect would tend to mount up until the strain came to an end, and as a matter of fact this is exactly what happens where the defect is very great and where it exists upon both sides of the family. On the other hand, by referring to previous figures, it will be seen that a dominant trait can be bred out provided those individuals having the disease do not have children. All of the children of

FIG. 22



Influence of the soma cells upon the germ cells. *A*, white hen (homozygous); *B*, black hen (homozygous) castrated, with transplanted egg of white hen; *C* and *D*, progeny of *A* and *B*; *E*, black hen (homozygous); *F*, white hen (homozygous) castrated, with transplanted egg of black hen; *G*, progeny of *E* and *F*. (After Guthrie.)

an infected mating are not affected, and if those who have the disease do not have children the others may have children with impunity, because with a dominant the principle holds good, once free always free. And so in this way the disease may be bred out of the stock.

Similarly with recessive traits. Here the individuals may bear the disease in recessive form and be healthy themselves, though capable of transmitting it. If the condition of such individuals could be postulated by a careful study of their ancestry and they could be mated to healthy stock the disease would not reappear.

This question of proper mating is of very great importance and lies at the root of the whole matter of positive eugenics. I may supplement what I have said heretofore, namely, that the individual is the product of what he brings into the world plus the action of the environment upon him, by stating that what he brings into the world can only be understood by a study of his ancestry and what he is going to contribute to his progeny can only be forecast in the light of that information plus the same sort of knowledge of his mate. I shall not endeavor to discuss legal efforts at control of marriage. I shall only state that there are many avenues through which legislation is expressing itself in these days that tend toward a modification of the environment in a way which will add to its helpfulness and will, therefore, assist in preventing disease in general, and, of course, mental and nervous disease in particular. Such laws are more particularly the laws regarding certain hygienic and sanitary conditions in factories and tenements and providing for their inspection, the laws that have for their purpose the insuring of pure and wholesome food, the child labor laws, the laws establishing juvenile courts, and the laws in certain countries providing for special consideration of the pregnant woman by such means as insisting upon her stopping work for a reasonable time before and after confinement, paying her her wages during this period, and giving her an opportunity subsequently to nurse her child. These are the legislative tendencies of the present day. Much in addition to these legislative tendencies, many other movements have grown up which are significant of change in the way of improvement. Societies of mental hygiene have been formed, local medical societies of psychiatrists and neurologists have given comprehensive courses of public lectures, while the amount of popular literature on the subject is constantly increasing.

As bearing less directly, but very importantly, upon the subject are such movements as those of moral prophylaxis. The agitation of the subject of the venereal peril and the wider recognition of the baneful influences of alcohol. While these distinctly environmental conditions are being considered a new psychology has come into being which has changed materially our conception of the nature of the individual from the mental standpoint, and this new psychology is finding its application not only in the treatment of mental diseases, but in the problems of education, and the public school is following the ramifications of the changes that are going on.

NEGATIVE EUGENICS

A word in this connection with regard to negative eugenics. There has been a tendency of recent years to pass laws providing for the sterilization of certain classes of defectives and delinquents in the community. The casual reading of this chapter up to the present point I think will convince anyone that we are not yet in a position

to assume any such responsibility. The amount of knowledge of the ancestors of an individual that would make it scientifically justifiable to sterilize him is an amount that is rarely obtainable, and so far as I know where this work has been done there has been little or no effort to obtain that knowledge, whether its desirability was or was not appreciated. The only conditions where this method of procedure might theoretically be justifiable with a minimum amount of knowledge would be conditions in which the disorder from which the person suffered was dominant, and, therefore, of necessity would be transmitted to the progeny. We must remember, however, that even in dominant traits union with a healthy person may produce a certain proportion of healthy children, and unless there are going to be at least two children no prediction is justifiable. If the mating were productive of only a single child, as so many matings are in these days, there is no reason why that child should not be the well child instead of the sick child, and if well it might grow up to useful citizenship. To take the responsibility of interfering at this point and preventing such an issue is a very grave matter and warrants a much profounder knowledge of the subject than we can claim at present.

On the other hand, if the trait is recessive, only a very careful examination of the ancestry will make that clear. Then only rarely will it be anything more than a probability. To sterilize such a person is a still graver responsibility, for mating with healthy stock here will eliminate the disease without even any sick progeny as the price. I cannot be too emphatic in my denunciation of the type of legislation here referred to.

GENERAL CONSIDERATIONS AND CONCLUSIONS

For the last two generations, at least, evolution has rested its explanation in the struggle for existence and the survival of the fittest. Universally distributed deadly forces have operated to weed out the weak, and the strong have survived. If we go back in the pages of history we can but be astounded when we come to realize that the diseases which the conqueror has brought into a new territory have killed more of the conquered than his sword, and that literally it is the bacteria that have been the builders of empires.

In the face of this kind of knowledge constant effort has been made to discover the underlying laws that control and bring about these results, and so among other things we have the various efforts to explain the phenomena of heredity. These efforts have tended to split in recent years into two opposing schools, the Neo-Lamarckians and the Neo-Darwinians. The former believe and the latter disbelieve in the inheritance of acquired characters, the former being essentially optimistic, the latter essentially pessimistic. In this chapter I have endeavored constantly to point out my belief that these two schools but represent two viewpoints, and that although superficially they

appear to be opposed to one another and their tenets mutually exclusive, still there is probably some broader ground upon which they may meet in common.

I have endeavored, also, to get away from the fallacy that in dealing with the question of human heritage we are dealing with any single character. I have shown that we are as unable to define unit character as we are unable to define inherent and acquired characters, and I have indicated that characters come down frequently in complex groups. There is another fallacy which at this point should be set forth. In the large cities of China the hygienic and sanitary conditions are atrocious. The streets are filled with sewage and offal, the children untended and dirty. In an environment of this sort the infant mortality is tremendous and the child that grows to manhood does so because he has something within him that makes it possible for him to resist the ravages of the disease that surrounds him. He has been carefully selected by nature, and the general assumption is that natural selection under such conditions has produced an example of health and strength which could not have occurred under less stringent and selective influences, and that this general result is desirable.

While all this is true, it is one of those deceptive partial truths. Selection in the face of disease and filth does produce individuals that are immune to disease and filth, but is an individual who is immune to disease and filth thereby any more a desirable individual for the community in any other particular than because of his power to live in the face of these selective agents? Certainly it cannot be contended that selection by disease and filth tends to develop character, that a race of people so selected will have those qualities of personality that are considered by us as desirable, that such an individual will necessarily possess any of the characteristics that make for what we believe is good citizenship. He will be selected so that he will survive under conditions of disease and filth and that is all.

Precisely the same argument has been advanced toward tuberculosis as a selective agent, and in fact toward all of the various lethal selective agents. Alcohol has been said to kill off the unfit because it was only the unfit who drank themselves to death. This is, of course, true, but it is only a partial truth. Surely a race of people selected solely upon the basis of their resistance to alcohol could not be conceived to possess thereby those high standards of efficiency toward which we who are optimistic believe that the race is reaching out. Much more evident is the fallacy in a disease like tuberculosis, where more obviously than with alcohol the infection fastens itself upon useful, efficient, capable, highly developed members of the community. Disease is no respecter of persons, and although tuberculosis sweeping through a race undoubtedly is a selective agent, yet it numbers in the army of its dead many of the fit as well as the unfit, provided we do not limit our term fit to the sole consideration that the individual is capable of surviving a particular disease.

We will see, therefore, that the problem of eugenics is a broad one

and that it is not a matter solely of developing a race of physically healthy people, but that it has a higher plane of usefulness—namely, the development of a race of people in which character figures largely as a desirable quality. It is, of course, undoubtedly true that the two must go together. Our sanitarians will probably pretty well take care of our bodies, but to our minds probably no special thought will be given. And so the department of eugenics, which is endeavoring to discover the laws of inheritance of mental traits, becomes one of extreme importance

As the evolution of the race proceeds and as conditions become progressively more and more complicated we can less afford to leave to blind chance any small detail over which it is possible that we might exercise a beneficial control, and so eugenics bids fair to increase its field of operations as time goes on and to become progressively a more and more valuable asset to preventive medicine.

The work which is now being done in eugenics is pioneer work, and the methods which are being used and the conceptions under which these methods have developed are as yet somewhat crude and easy to criticise. However, a reading of this chapter will make it clear that there are a great many facts already fairly well established, and that the various hypotheses that have been formulated are serving as useful tools in the obtaining of new facts. It is fortunate, too, that in these matters of heredity a graphic method of setting forth the facts has been chosen. The charts of pedigrees show almost at a glance what it is aimed to set forth, and thus become important agents of public instruction.

The work is attracting a great deal of attention not only in scientific publications, but in the public press and in public magazines. The seed has taken root and its roots are expanding in all directions. The growth is of necessity slow, but correspondingly sure. Witness the change of public opinion which has taken place with regard to habits of drinking. A generation ago drinking was smiled at often as a rather charming weakness. It was not uncommon for our public men to be seen intoxicated. Today such a thing would be impossible, while the known alcoholic has the extremest difficulty in getting any kind of self-supporting employment.

With a change of this sort having taken place almost under our very eyes within a single generation it is perfectly conceivable that a like change should take place in other matters of eugenics. At the present time there is, of course, a certain rough selection in mating. Beauty of form and feature is considered desirable, and, of course, in a general way, beauty of form and feature means absence of disease. Sick people do not have the clear skin and the bright eye and the pink cheek that make them attractive. But eugenics oftentimes, on the other hand, sees beneath the bright eye and the clear skin and sees a defect in the germ plasm which may transmit disease to the coming generation. Why then is it not possible to conceive of a change in mental attitude toward questions of mating, and so instead of the outward

and superficial beauty that is now desired, the inward substantial health should be the thing sought after; instead of a pretty face a sound germ plasm should be the object.

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CHAPTER II

EDUCATION

By S. S. COLVIN

EDUCATION AS THE MODIFICATION OF BEHAVIOR FOR SOCIAL ADAPTATION

EDUCATION may be defined in its most general terms as the modification of the behavior of an organism through experience. The word "behavior" is here used in its widest sense to include all the movements of an animal from the simple reactions of the ameba to the complex activities of a human being. Any influence in the life history of the individual that serves to modify his behavior, to make it different from what it originally was, may be considered in this general sense as educative. On the other hand, we use the term education more commonly to signify solely those influences that are in a way consciously planned and directed. The environment always tends to modify behavior, since it varies from time to time, and thus new adjustments are required for satisfactory adaptation; however, it is the environment as consciously determined and controlled that we ordinarily think of when we speak of education. Yet it is well to remember that all environmental influences that tend to modify behavior must be considered as the causes of new adaptations, and hence, in a very true sense, as a means of education.

When we use the term "experience" we refer to the course of events in the life of a single individual as distinguished from those that occur in the life of many individuals. In other words, the experience here referred to begins with and ends with the individual. It is not carried over from parent to offspring; it is not directly inherited; it is not racial. The modifications of behavior of the individual must be considered as acquired characters and they are in all probability as such purely individual modifications. Hence it follows that the results of education cannot be directly transmitted through physical inheritance and thus cannot become permanent characteristics of the race. Such a transmission would be possible only if these modifications were inborn and not acquired.

Scope of Education.—From the above considerations it might seem that all education, whether formal or natural, must begin with and end with the individual. Thus the scope of education would be very much limited and the possibilities of great advance correspondingly lessened. That this is not true, particularly so far as human beings are concerned,

is due to two chief causes. The acquired behavior of the individual influences the behavior of succeeding generations, first, because it may influence indirectly the prenatal development of the offspring. The behavior of the parent may influence his physical condition in such a way as to benefit or hinder, as the case may be, the development of the child. It is generally recognized today that alcoholism in the parent may have a marked influence on the child. Alcoholism cannot be directly inherited, but there is every reason to believe that this excess checks the full growth of the embryo. It is one of the certain causes of feeble-mindedness and insanity in succeeding generations. All forms of dissipation, immorality, and excess thus become a menace to futurity, while, on the other hand, it is not unreasonable to suppose that proper behavior, resulting in right living, may in the same way exercise an indirect benefit on succeeding generations. In thus modifying the conditions of prenatal development, the behavior of the individual becomes of no little importance for his descendants, and those who are in any way responsible for the direction and control of this behavior, whether as parents, teachers, or social leaders, must see to it that the conduct of the individual is such that it will tend to promote rather than to hinder the health, intelligence, and happiness of future generations.

In still another, and in an even more important sense, the effects of education in the human race do not end with the individual who experiences them. While direct physical transmission from parent to child seems excluded, such transmission is possible through the social medium, through the *milieu*. The conduct of each individual tends to modify that of others in his immediate environment, to a greater or less extent. The entire social group is extremely imitative and suggestible. A leader may profoundly influence the behavior of this group and thus the behavior of countless individuals who are later born in this particular social environment. Many communities manifest for centuries certain attitudes of mind and types of behavior which originally were the characteristics of a few individuals from whom this group traces its origin. While the influence of those in a community that are not capable of social dominance is less marked than that of the leaders, still it must be assumed that the conduct of each individual has some effect upon that of the entire group, and that this influence may thus be far reaching. In the light of the transmission of acquired behavior through the milieu, the conduct of each individual acquires a significance greater than if this conduct were transmitted through direct physical inheritance. If physical inheritance were the sole means of transmission, the behavior of the individual could have significance only in so far as it were directly inherited; thus its influence in most cases would be circumscribed within narrow limits. Inheritance through the milieu, however, makes a widespread and continued effect possible.

We have already said that it is the environment that produces a modification in behavior. Whether it be the natural environment

into which the individual is born, or the environment more or less artificially constructed in the school, it is this and this alone that educates. The natural environment has grown up; it has not been planned in any way; both its physical and social elements are the result of undirected forces that have brought it into existence. In all animals below man this is the only environment to be considered. The environment is never purposively modified except when human beings are concerned. However, in human society the environment through which the individual is formally educated is determined by the educational ideal; that is, by the conscious purpose, by the specific aim of those who have the means of education under their control.

Educational Ideals.—The educational ideal has varied from time to time, very largely in terms of the dominant ideals of the social group in which the formal education of the schools arises. These ideals have sometimes been military and political, at others, religious and moral, still again, industrial and economic. They have varied not only from generation to generation, but within each generation there have arisen different ideals, corresponding to different race prejudices and different social levels. These ideals have taken two general directions, in so far as they have been dominated on the one hand by purely individualistic considerations and on the other by social aims. In terms of these two different ideals education has been looked upon either as a means of giving happiness to the individual, or of promoting the highest interest of the group by making each individual socially efficient. It is this latter ideal that at present seems to be the most emphasized, and it is not only determining the character of the school environment, but it is also justifying the most varied forms of education in so far as they can be shown to be of value to society. It is no longer claimed, as it was scarce a generation ago, that our system of public education is to be justified only as it is democratic; that is, only as it is available for everybody in an equal degree. Any form of education at the public expense is now considered legitimate so far as it equips individuals with an education that can render these individuals more efficient in relations with their fellow men.

While the emphasis is at present on the social value of education, its value to the individual is not entirely ignored. Indeed, under normal conditions, there is no incompatibility between these two ideals, since it is only as the individual is socially effective that he is ordinarily happy. For example, economic independence makes the individual valuable to society and at the same time gives him the means to secure those material things which contribute to his personal welfare. Further than this, the knowledge that he is of service to society is an important element in the pleasure which the average individual takes in living.

Education of Subnormal Classes.—However, when we come to the education of the defective and the delinquent classes, we find a separation between these two educational ideals which does not exist in any marked degree when we are dealing with the education of normal

individuals. The subnormal child, as a rule, cannot be made socially efficient in any large measure. He is often a menace to society and can never be educated sufficiently to place him on the level with those who have healthy bodies and well-developed minds. His education must be considered very largely as justified from the individualistic standpoint. It is true that within an institution he can be taught to perform certain activities which may render him, in part at least, self-supporting, and in this way his activities may to a small degree be thought of as useful to society. Nevertheless the world will probably never be benefited by his existence. His mentality is such that he will never impress himself on the milieu in such a way as to better it. His productivity, economically considered, will never be in excess of his actual needs. The aim of education so far as he is concerned must be from the standpoint of society negative rather than positive.

In other words, the attempt will be made to make him the least burden on the community possible. If he can produce enough in a material way to compensate for the expense of the special care given him, well and good. He must further be so educated if he should leave the special institution in which he is placed, that he will conform as far as possible to the social ideals of the world at large, and that, at least, he shall do nothing to lower or destroy them. Since, however, he can never be brought up to normal intelligence, there is a danger in educating him to such an extent that he will acquire a superficial gloss and thus be enabled to mingle with normal individuals on equal terms. This is particularly true of many delinquent girls, who are also in a large number of cases feeble-minded as well. An education may make them a menace to the community if they are allowed to move about at large unsupervised. The ideal for the education of the clearly subnormal individual should be that of securing his reasonable happiness within an institution in which he is permanently to remain. The hope of making him positively effective as a social unit should not be given a place of any importance. On the other hand, care should be exercised that in his education he should be made as harmless as possible in the community life of the world outside, if unhappily he shall be allowed to mingle in it. It must be remembered that from the standpoint of the group all delinquents and defectives are worse than valueless; they are a positive danger, especially if they approach normality without being able to attain it. It is because of the humanitarian instinct that such are allowed to survive, and indeed are not only allowed to survive, but enabled to do so by special care and special education. This humanitarian motive is worthy; it could not safely be dispensed with. It is, however, important to recognize it and to understand that it furnishes the justification for the education of those unfortunate beings who, either through congenital or acquired conditions have been rendered incapable of taking up life's tasks and creditably performing them.

In passing it may be well to emphasize the fact that while the special education of the subnormal classes must be chiefly defended from the

standpoint of the individual as such, the reverse seems to be true in regard to the special education of the distinctly supernormal. Although a superior education for these individuals will contribute to their own happiness, it will in more than usual degree be important for society that they be so educated. While the subnormal child will give back to society less than is given to him, the supernormal child will return a hundred-fold the benefits with which he has been provided. The problem of the subnormal child receives special attention in Dr. Goddard's chapter, which follows.

INHERITED MODES OF BEHAVIOR

As we have already said, education may be considered as the modification of the behavior of an organism through the influence of the environment. All behavior, however, is not due to education. Certain varieties are not gained through experience, but either exist at birth or arise later independent of experience. These inherited modes of behavior are the basis of future modifications of behavior, and hence, while they are not the results of education, they become one of the important conditions for new varieties of behavior. No form of behavior is absolutely created by the environment. Education does not bring into existence something out of nothing. Education modifies what is already present in some degree; it selects and preserves certain modes of expression, eliminates others, and again recombines into new complexes the elements of behavior found in still other relations. If the organism did not possess at birth definite means of reacting to its environment, it would soon perish in the struggle for existence. It never could be educated. It is an important principle for the teacher to remember that he must always utilize what is immediately present in building for the future. He does not create, he merely directs.

Reflex Activities.—The first movements that the organism makes, whether brute or human, are unconscious, at least, one can say they are not consciously directed in any way. The individual is stimulated and immediately he responds to this stimulation, generally with a mode of behavior that is suited to the conditions under which he finds himself placed. He is not conscious of the end of his acts, however; he does not know their utility, although he may be conscious that he is performing the act. The simplest of these undirected activities have been termed reflex. They are thought of entirely in terms of the mechanics of the nervous system. Consciousness if present plays no part in their execution. These simplest reflexes are the function of the cord alone. They may involve only two neurones. A stimulus traverses a sensory nerve and is transferred to a motor cell, which sends out a discharge to the appropriate muscle. A sensory stimulus may transfer itself to a group of motor neurones and it may connect with motor neurones lying at higher or at lower levels in the cord. There are still higher levels of reflex action than those found in the cord. They lie between the top of the cord and the cortex. The mechanism while more complex,

is similar to that of the cord. The important fact about these reflexes is, as has already been said, that they occur in a mechanical way, and further, that they direct definite and useful acts. In other words, the stimulus in these reflex activities finds an appropriate channel of discharge. These channels may be thought of as preferred paths of conduction in the nervous system that already exist at birth. Theoretically the discharge might take other channels; that it does not is due to the ease with which the transfer of energy takes place in certain directions. Other possible paths are not permeable under ordinary conditions.

Instincts.—Certain complex reflexes are given the name of instincts. They issue in useful acts like the more simple reflexes. Likewise, these acts are not executed to secure any conscious end. The bird builds its nest, but it does not know why it does so. It simply responds to a deep-seated impulse that urges it on to perform the nest-building activity, prior to all experience. Not only are instincts more complicated than simple reflex activities; they are usually accompanied by a strong effective coloring. When checked they develop into emotions. Instincts further differ from reflex activities in the fact that while they are inherited they are not necessarily present at birth, but may appear during the course of the individual's development. For this reason it is often difficult to distinguish them from habits, which likewise, put in their appearance from time to time, and are not present at birth. The great difference between habits and instincts is to be found in the fact that the former are acquired, while the latter are inborn. Habits are the result of education, but instincts are inherited. An instinct may be defined as a complex set of reflexes working together for a common result, of which, however, the individual possessing the instinct is often unconscious. Accompanying this instinctive manifestation there is generally a conscious correlate of some degree of clearness and an affective tone of a greater or less intensity. Instinctive activities differ from intelligent activities mainly in the fact that they are highly useful modes of behavior from the start, that they are well adapted to secure the results which are the ends of the instinctive manifestations, that they are definitely inherited and easily predictable as to the form of their manifestation, and finally, that they suggest experiences that seem individual, but are not as a matter of fact. Intelligent behavior, on the other hand, becomes serviceable in greater and greater measure through repeated experience; it is perfected through individual experience, is not definitely inherited, and is difficult to predict as to the form of its manifestation.

Where simple reflex activity ends and instinct begins it is often difficult to say. No two writers would probably agree on a definite line of demarcation. Some of the most important human instincts are, however, fairly well agreed upon. They include fear, anger, sympathy, affection, play, imitation, curiosity, acquisitiveness, constructiveness, self-assertion (leadership), self-abasement, rivalry, envy, jealousy, pugnacity, clannishness, the hunting and predatory instincts, the migratory instinct, love of adventure and the unknown, superstition,

the sex instincts, which express themselves in sex-love, vanity, coquetry, modesty, and closely allied to these, the love of nature and solitude, the esthetic, the religious and the moral emotions, and the appreciation for the incongruous and the comic. The majority of these instincts are very important in the education of the child, whether he be precocious, normal, or feeble-minded. Through the direction of these instinctive expressions much of good or evil may be brought about, as the case may be. It is, therefore, highly important that any scheme of education take these instincts into careful consideration and utilize them so far as possible as incentives toward useful behavior.

In order thus to utilize these instincts several important facts in regard to their educability must be kept in mind. It must be remembered in the first place that the fundamental instincts cannot be eliminated. They represent impulses that have been tried out through countless years of racial experience and have been found worthy. It is true that certain individual manifestations of these deep-seated instincts may result harmfully, but the instinct as such is not for this reason to be considered base and unworthy. This is particularly true of the sex instinct that is basal in human experience and which must always be counted with. The problem of proper sex education is a difficult one when the normal child is concerned, but in the case of the feeble-minded it becomes a most serious matter, since in this latter case there seems to be no safe channel for its expression. Therefore, for the good of society it must be held in check by all means possible. It cannot be safely directed by education, as it quite generally can be with normal children.

While these fundamental instincts cannot be eliminated through education, they may be directed and modified. Such direction and modification is possible by bringing one powerful instinct into competition with another. In this connection the instinct of fear renders an important service. Base and ignoble fear should never be used as a motive to correct undesirable conduct, but a fear of the just consequences of an undesirable act is a proper and healthful incentive to right behavior. The greater the intelligence and the stage of development, the greater is the possibility of appealing to the reason and judgment of the individual. However, normal children cannot always be made to comprehend the ultimate results of a course of action. They must be brought to fear the consequences of those acts that are stamped with social disapproval by receiving punishment for misconduct. What is true of the normal child is even more true of the feeble-minded. Fear of physical discomfort is sometimes a wholesome corrective for improper conduct. It is, however, to be kept in mind that punishment in the form of marked social disapproval is one of the strongest inhibitions which can motivate conduct, and this form of punishment should be employed whenever it can be made effective.

The Play Instinct.—There are several of the most important instincts which exercise a marked influence over conduct not so much by directly working against other instincts as by gaining entire possession of the

individual and dominating him in such a way that other instinctive forms of behavior find no opportunity to express themselves. For example, the child may refrain from manifesting cruelty to his mates because he fears the disapproval or positive punishment which will be dealt out to him if he does, or he may refrain because he is so taken up with his play that the idea of cruel behavior does not enter his mind. In the latter case the instinct to play does not inhibit the instinct of cruelty; it rather takes the place of the lower instinct and affords it no opportunity for expression. Play is one of the most serviceable forms of instinctive expression that education can avail itself of to direct conduct. Play is valuable for several reasons. In the first place, play is always a pleasurable activity, and as such is desirable in itself. Further, it stimulates the imagination and thus is a means of developing the intelligence. Again, through play activities much can be learned that is of definite practical significance to the child. In the kindergarten, play is the chief means of educating the child. It also forms an important part of the means of instruction in the primary grades, and is most helpful in the instruction of the subnormal child. Further, play has a marked social significance. Through free play the child learns his place in the group. It gives him the opportunity of manifesting qualities of leadership on the one hand, and docility on the other. He finds that he can at times command and that at others he must obey. He discovers his proper place in the group; he develops initiative and learns obedience. These are distinctly moral lessons, and they will be of the greatest importance to him in after life. For this reason in particular, play should be as spontaneous as possible, and should not be supervised by adults any more than is absolutely necessary.

The Instincts of Acquisitiveness and Constructiveness.—Of similar importance to play are the instincts of acquisitiveness and constructiveness. Much may be taught the child in an incidental way through the tendency that he has to collect all sorts of objects. When this instinct is directed along definite lines it may become of no small educational value. The impulse to construct has been systematically used in recent years in the schools in developing courses in the industrial arts. These have a double value. In the first place they provide the child with a set of useful activities and in the second place they have a decided educative value, since they demand intelligent action and are as valuable in mental development as are the more conventional materials of instruction. They are interesting and pleasurable activities for most children, and they can be engaged to great advantage, particularly by those who are incapable of making progress in the older subjects of instruction. They have the power of holding the attention even when it is naturally weak and fluctuating. They furnish an occupation, and, hence, are often of great service in securing satisfactory behavior among the feeble-minded and insane.

The Instinct of Imitation.—Imitation is another tendency which is extremely important as a means of education. When we use the

term we ordinarily think of conscious imitation, that is, the attempt to reproduce a copy. However, much of the imitation through which the individual is educated is quite unconscious as far as any direction on his part is concerned. He simply takes in from his environment many things that exist and reproduces them without any intention on his part to do so. It is, therefore, highly important that he should be surrounded by the proper environmental conditions. With the average child it is often difficult to secure such an environment. Even if the surroundings in the home and the school are all that could be desired, the child as he grows older is brought more and more into contact with the wider environment of the community in which he is reared and thus is brought into contact with many things that are undesirable for him to imitate. In the case of the child or adult confined within the institution the problem of environmental influences is not quite as difficult; that is, if care is taken to provide the proper surroundings for the individual to imitate. It is extremely important to do this. A part of the value of education in such institutions will depend upon whether the environment is of such a character that it will induce through unconscious imitation desirable behavior.

Modification of Instinct. — We have already pointed out the fact in the discussion of instinct that the most fundamental tendencies cannot be absolutely destroyed through education, but that they may be directed either by bringing one powerful instinct into competition with another, or by emphasizing certain fundamental instincts in such a way that they take up a large share of the individual's interest and attention and thus reduce to a minimum less desirable forms of instinctive activities. It is further important to remember that certain instincts, those not too fundamental and deep-seated, may never become permanently established in the life of the individual if they are not given the proper environment for their expression when they appear. Thus truancy, which is a form of the instinct to rove, and is closely connected with a love for nature and other impulses of a similar character, may never be established as a habit if the school and home offer sufficient satisfaction to keep the child's interests centred in them. So it is with the manifestation of other undesirable tendencies, if the proper soil for their growth is not present. It is likewise true that such tendencies as teasing and bullying, undue assertion of the self, and its opposite, undue self-repression and humility develop only in an environment that tends to foster these impulses. If the older boy mingles with those much younger than himself, he is apt to develop an excessive self-assertion, if he has the least tendency in that direction, while, on the other hand, a child who associates habitually with older companions is likely to be dominated entirely by their wishes and thus does not develop the requisite amount of self-assertion. It is particularly important from the social and ethical standpoint that there be a proper balance between the two tendencies, the one of over self-assertion and the other of self-abasement. It is, therefore, necessary that those who are educated within an institution

should associate with companions who are approximately their equals in general intelligence and self-initiative.

While it is true that instinctive reactions are directed toward ends that are useful to the organism, there is at the start a certain amount of variability in their manifestation, and they must be perfected through repetition until they are completely established. It has been pointed out, for example, that the chick will, a short time after its emergence from the shell, without previous experience, peck at various small objects that it sees. This general tendency needs to be modified and restricted through experience in such a way that the chick will eventually learn to peck at those objects only that are desirable for food. In other words, the instinct is a general tendency to respond. It must be definitely directed before it becomes of genuine service to the organism. What is true in this particular instance in regard to the chick, seems to be true of instinct in general. It can manifest itself within limits in various ways. The particular form that it finally assumes is due to environmental influences. In this sense, then, instinct is educable. An excellent example of the variability of instinct and the necessity of the guiding of general impulses into definite paths is found in the case of curiosity, one of the most important instincts from the standpoint of learning. At first the child is curious about all sorts of things. It is the business of education to turn this curiosity into those channels that will be of the greatest benefit to him.

Diffuse Activity. — In addition to reflex action and instinctive response, there is a third form of behavior undirected by consciousness that must be noticed in passing because of its extreme importance to education. This is diffuse activity. It differs from the two forms of uncontrolled activity previously discussed in the important particular that it is not definitely directed toward any useful end. The seemingly purposeless cryings and squirmings of the infant are illustrations of this sort of activity. It is also characteristic of older children and of adults to a certain extent. If the child who is learning to write is observed, it will be seen that he makes a large number of unnecessary movements in addition to those which are directly of value to him in the adjustments involved in writing. An adult learning a game of skill will likewise exhibit this same tendency to make many ill-directed movements and movements in excess of the actual needs of the situation. These diffuse movements occur when there are no definite, permeable channels for the discharge of the stimulus in preferred paths of conduction. Until a skilful act has been mastered these excess discharges invariably occur. Their seeming lack of utility is, however, only seeming, since from them by a process of unconscious selection are chosen those particular activities that issue in satisfactory results. Thus it may be seen that in this respect the process of education consists in selection and in elimination. As has been said before, in learning nothing absolutely new is created.

ACQUIRED MODES OF BEHAVIOR—HABIT-FORMATION

While, as has been pointed out, various kinds of behavior are inborn and are not dependent on previous experience for their exercise, the large majority of the useful activities of human beings have been acquired; they have been learned. These acquired modes of behavior are gradually set up and when perfected are known as habits. Habits, like instinctive and simple reflex activities, are directed toward definite and highly useful ends; when fully formed they are executed without conscious direction, and their nervous mechanism is to be thought of as similar to that of the activities previously discussed. The discharge here follows preferred paths of conduction, which, however, are not inborn, but have been acquired. A habit may be defined from a neural point of view as a path of preferred conduction between stimulus and response set up and due to the life experiences of the organism. The fundamental difference between habit and instinct lies in the fact that the former is due to the organism's experience, while the latter arises independent of such experience. Habit is the result of education, while instinct and diffuse activity lie at the basis of learning. Effective action is in a large degree based on the formation of a large number of useful habits. This is particularly true of all those individuals who are incapable in any large measure of controlling their behavior by intelligent direction. Thus the problem of educating the subnormal classes is mainly that of proper habit-formation.

Principles of Habit-formation.—There are a number of important principles to be kept in mind by those who are aiming to initiate and perfect proper habits. These may be stated as follows:

1. Make the incentive for acquiring a new habit as strong as possible. Do not allow a single exception to occur. Any break in the new habit, especially a return to an older and less desirable habit, may be disastrous.

2. A habit can be established only by exercising it. Mere resolve without execution is worse than useless.

3. The most important means of initiating and fixing a habit has been expressed by Bagley as "focalization of consciousness on the process to be automatized, plus attentive repetition of this process, permitting no exceptions until automatism results." While habits are fixed through constant repetition, this repetition may be useless unless attention is given to the process that is being acquired. The problem of securing attention is perhaps the most important of all in the education of the little child and of the feeble-minded. It must be gained at all hazards. Without it learning to any extent is impossible. The importance of this factor of attention will be discussed more extensively later.

4. Favorable attitudes of mind are important for the learner in the acquisition of a habit. Here the confidence that comes through the stimulus of success is essential. For this reason the teacher should

not require of the child any task that is beyond him, any activity in which he is bound to make a large number of failures. If he becomes discouraged, the learner will either abandon his attempt, or will go about his task in a half-hearted way. The feeble-minded child must be given every possible encouragement to stimulate him to persistent endeavor. On the other hand, while the task should never be made so difficult that it is beyond reasonable accomplishment, it should never be made so easy that no effort is required. This latter caution applies more particularly to the bright child than it does to the dull and the backward pupil.

5. In the learning of a skilful act, or of any desirable form of activity, there should be periods of maximal effort. It is the opinion of many investigators that it is the intense effort that educates. While no child should be put under constant strain, there are doubtless times when he should be called upon to put forth all that is in him for a brief period.

6. Excessive haste in learning is often attended by the partial disintegration of a habit in the process of formation. There is a balance that must be preserved between speed and accuracy. When the speed has reached the point where a large number of errors put in their appearance, then it should be cut down to safe limits. There is no advantage in working rapidly if the work is poorly done.

7. There is a great advantage in the learner recognizing those elements in an act of skill that contribute to its successful accomplishment. When the child cannot discover these elements for himself they should be pointed out and insisted on by the teacher.

8. It has been found by most investigators that in learning the improvement is rapid at first, then much slower. Furthermore, there are periods of greater or less extent when no progress whatsoever is made. These periods of no improvement in the learning curve have been called "plateaus." They appear as hindrances in the process of habit-formation, and should be overcome as rapidly as possible. When such periods are reached the teacher should encourage the pupil in every possible way and stimulate him to persistent effort that he may reach a higher level of performance.

9. A habit is sometimes perfected to an extent by discontinuing its practice for a while and allowing a period of "incubation," as it has been styled. It is particularly desirable to do this when the practice has become wearisome and unnecessary errors are creeping in. Under such conditions it may be unwise to insist too rigorously on the practice of the activity that is being learned. At such a time rest of a week, or perhaps even a month, may be beneficial.

10. It is now generally agreed that a habit acquired in one particular field of learning cannot be transferred to another without loss. For example, accuracy in reasoning in solving arithmetical problems does not of necessity mean accuracy of reasoning in history or politics; the habit of neatness acquired in writing papers in English does not certainly imply habits of neatness in personal dress. Such habits can

be of service beyond the situation in which they have been learned only in so far as there are elements in the new situation which are identical with the old. However, if an ideal of neatness or accuracy that is gained in one sort of learning is held consciously in the mind, then it will be possible for this ideal to influence the learning in other fields. If a certain technique of learning is consciously mastered in the formation of one specific set of habits, it may be made effective if held in consciousness in learning another set of activities. It is, therefore, important for the teacher in guiding the pupil in his habit-formations to insist that he shall understand the methods and purposes involved in the learning. If this is done, the specific habit acquired may be of great service beyond the immediate sphere of its application. This sort of transfer demands on the part of the pupil a considerable amount of discrimination and intelligence, more than is commonly possessed in any large degree by the feeble-minded. In the case of defective children habits are almost exclusively of value in the particular field in which they have been acquired. A specific rather than a general training should, therefore, be the aim of education in the case of the subnormal individual.

FUNDAMENTAL FACTORS IN ACQUIRING NEW MODES OF BEHAVIOR

We have already pointed out the fact that the individual is equipped with a "ready-made" set of activities, activities which are innate, that he does not have to learn, but that in addition to these he is compelled to acquire new activities which, as they are repeated, become more and more fixed and mechanical, until they are established as permanent habits. The question now to be considered is, "What are the fundamental factors that make possible these new modes of behavior?" "By what means is education achieved?" There are four chief ways in which this is brought about; that is, through "trial and error," through the "adaptive instincts," through "self-directed imitation," and finally, through the formation of "free ideas." These methods will be considered in turn.

Trial and Error.—Trial and error is the most fundamental process in all learning. By means of this and the adaptive instincts, Nature educates her children, although they are quite unconscious of the fact that they are being educated. They learn without aiming to learn, and generally without knowing that they have learned. Trial and error in its most primitive form is a blind process. The individual attempts one sort of a reaction and finds it does not work; quite without purpose he tries another and another, until finally he makes the right response. Constant repetition may finally establish this correct response as a habit, and then he has made a permanent addition to his stock of useful behavior. This method of learning is well illustrated by the dog in the "puzzle box." This box is so constructed that the

animal can escape and secure the food placed outside only by going through a series of relatively complicated acts, such as pulling a string with his mouth or thrusting back a bolt with his paw. When the dog attempts to escape from his confinement he at first makes all sorts of aimless, random movements, until by chance he hits upon the one that will work and will permit his escape from the box. When he is again confined in the box he will probably make his escape more easily than he did on his first trial; at length he will make rapidly and accurately the movements necessary for his release.

A large part of the social progress of human beings is the result of this blind process of "try, try, again." Certain forms of behavior have been continued until they have become so unsatisfactory that they could no longer be useful; then something else has been tried. If this has worked, well and good, if not the trials have been continued until a satisfactory adjustment has resulted. A higher form of trial and error than the blind process just discussed is that in which the individual with foresight and definite plan consciously limits the field of exploration, and thus avoids many useless attempts at those adjustments which are clearly shown in advance to be inadequate. Since blind trial and error is a tremendously wasteful process, the individual should strive so far as possible to limit its scope by intelligent self-direction; when he cannot do this for himself, the teacher should aid him in making such a restriction. The less intelligent the individual the greater is the necessity for those who are directing his education to make this restriction for him.

Adaptive Instincts.—The adaptive instincts are those which prepare the individual without any recognized need on his part with a set of reactions that will be at a later period of development useful. In this way the animal and the child learn in advance of existing necessities appropriate modes of behavior. Play, as has already been pointed out, is one of these adaptive instincts. Play is an activity indulged in for its own sake. It has no ulterior motive. Yet it results in furnishing the individual with certain modes of behavior which later can be used to advantage in the serious business of life. Another adaptive instinct is curiosity. The individual explores his environment for no ulterior motive. He is simply dominated by the instinct to know, merely for the sake of the knowing. Yet the knowledge gained in this way may later be of great practical importance. In its highest form curiosity expresses itself in scientific inquiry which, although it is influenced by no practical considerations, may be of the greatest utility, as the history of science has so clearly shown. In a similar way acquisitiveness, constructiveness, and imitation without conscious purpose to copy all provide the individual with modes of useful behavior that are, however, acquired without any knowledge of their utility.

Conscious Imitation.—Conscious imitation arises in connection with a recognized need. The object or activity to be copied stands out in consciousness as an end to be attained. It requires a considerable degree of attention and an ability to discriminate and compare. Hence,

it is not a characteristic of the learning of animals or of little children. Even with adult human beings a relatively small part of imitation is of the consciously directed sort.

"Free Ideas."—The highest form of learning is through the formation of "*free ideas.*" Free ideas are notions of procedure taken from one situation and capable of being applied to another situation differing in some measure from the first. The term "free" is used to signify that the idea in question separates itself from the situation in which it originally appeared, thus becoming available for use in other situations. The individual learns how to conduct himself in a given situation. Later a new situation is presented that is in some respects similar to the previous experience, and knowingly he uses the experience gained in the former situation to aid his conduct in the new. Thus he does not need to begin all over again. What he has done in a previous experience, comes to his aid in the later experience. It has been held by some psychologists that animals are incapable of forming such ideas. The dog who is confined in the puzzle box learns to make his escape after a long series of trials and failures. Through repeated attempts to escape under identical conditions the dog finally learns how to get out of his confinement by performing certain definite movements. If, however, the conditions of opening the door of the box are materially changed, the animal is completely "at sea" again. He must begin all over and master his problem anew, and he does this in the same aimless way as he did when he was first placed in the box, for he has not been able to abstract any idea of procedure from his previous experience and apply it to the novel conditions which now confront him. If a human being of normal intelligence were placed in a similar situation he would probably proceed in a different manner in the face of the second situation. Perhaps he has learned to pick a difficult lock, and in the first instance has gone about his task in quite an aimless way. Like the animal he may have finally succeeded purely by a lucky stroke. However, because of his first experience, he learns how to attack the task of picking not only the particular lock but also other locks that resemble in certain details the one that he first had experience with. The notion or idea of "how it is done" he can recall to consciousness at a later time, and hence, when he has to pick another lock, he can sit down and "study out" how to act in the light of his previous experience.

From the above considerations it can be seen that it is extremely important for the learner to be able to gain general notions or ideas of procedure. Yet there will never come a time when the process of trial and error can be entirely eliminated from behavior. The adaptive instincts, too, must play an important part, particularly in the early years of life. However, if the human race were limited to these two latter methods of learning, all higher forms of intellectual achievement would be made impossible. Education must see to it, as far as possible, that the ability intelligently to profit by experience and consciously to apply the results obtained in one situation to another are more and

more developed as the child advances in his formal instruction. In this way alone will he gain ability for self-direction and initiative. Otherwise he must forever remain the creature of habit, incapable of adjusting himself to new conditions in an intelligent manner. In the case of the normal child this highest form of learning becomes increasingly possible with his development in age and intelligence; with the feeble-minded, however, much less can be done, and, as has already been said, they must always remain largely under the dominance of habit and under the supervision of others. Still it is possible to develop, in the more intelligent at least, a capacity for forming free ideas, and this development should never be passed over slightingly in their education. Hence the teacher of the subnormal child, while emphasizing to a large degree correct habit-formation, should not entirely ignore this other aspect of education.

THE CONSCIOUS CORRELATES OF BEHAVIOR

Sensation and Perception.—In the preceding pages we have discussed education as the process by which new modes of behavior are acquired during the life of the individual and have referred from time to time to the conscious accompaniments of certain forms of conduct. In the following discussion we will consider more specifically the various aspects of consciousness as they are related to learning. In the first place, it must be remembered that the appearance of consciousness both in the individual and the race is to be interpreted as satisfying a need; that is, the better adjustment of the organism to its environment. Consciousness must then be thought of in some way as essential to conduct. It exists as long as it helps conduct and no longer. When there is perfect facility of response, perfect automatism and habituation, consciousness drops out, for it is no longer needed. When something goes wrong in the adjustment, when the old modes of behavior fail to be satisfactory, then consciousness again appears in order to secure new and more satisfactory conduct. Hence, consciousness may be termed pragmatic; that is, it serves a need, it is practical.

Fundamentally all consciousness may be considered as both sensory and affective in its nature. This means that all experience finds at its basis sensation on the one hand and feeling on the other. There can be no experience that ultimately cannot be traced back to some form of sensation; there is no experience, at least of any developed sort, that does not possess some form of value or worth. We not only have an experience; we also feel in regard to the experience; it is not a matter of indifference to us. Both sensation and feeling must be taken into consideration in all forms of education, from the most simple to the most complex. We shall consider the affective aspects of consciousness in their relation to education later; at present we must briefly discuss the various forms of consciousness primarily from the standpoint of their sensory aspects.

It is a fundamental fact for education to recognize that there can be no experience without sensation. Hence, care must be taken to see that the child is not hindered in his development by a lack or inadequacy of sensory experience. Defects of sensation that are of prime importance are in the fields of vision and of hearing. All school children, particularly those who are retarded and backward, should be carefully tested for sensory defects of eye and ear. However, it must further be kept in mind, that although sensation is absolutely indispensable to learning, in itself it is not sufficient for learning, even of the most rudimentary sort. Sensation must be interpreted, must be given a meaning, before it is of value in directing the behavior of the individual. This interpretation is what is known as perception. In any developed experience we never find simple sensation, but perception. Pure sensation is an abstraction. In the interpretation of sensation that constitutes perception, behavior is the essential fact.

Sensations, if they were not reacted to, could never acquire meaning. It is because each sensation tends to call forth a response that it becomes significant. This is the way in which the world of objective reality is built up. Every object in the last analysis is made an object by the reaction to the stimulus that it sets up. We do not simply receive impressions from an external world; we respond to these impressions in certain ways; we behave in a characteristic manner. It is this constancy of behavior that makes a world of definite objective realities. This is a most important fact for education to keep in mind. The individual learns in so far as he *reacts* to his environment; he is educated by *doing;* the process is not passive. It is particularly important in the education of the little child and the feeble-minded to remember this vital fact. The value of manual training and of other forms of education which appeal to the hand is due largely to the *activity* that is involved in learning.

The definitions of children show how fundamental action is in the interpretation of experience. The following are examples of some of these, as quoted by various writers: Pickle is something green to eat. Kiss is if you hug and kiss somebody. Vain is if you always look in the glass. A knife is to cut meat. A clock is to see the time. An arm chair is to sit in. A garden is to walk in. A potato is to eat with meat.

As the individual develops, the behavior aspect of meaning is not so evident in his verbal expressions, nevertheless there seems good reason to believe that when the meaning of anything is traced to its ultimate source, the significance lies in the reaction to the sensory experience, rather than in the sensation as such considered apart from the behavior that it inevitably tends to arouse.

The responses called forth by various sensations themselves become a part of experience because they appear in consciousness as sensations. These sensations of movement are termed kinesthetic sensations, and they are among the most important in the experience of the animal and the human being. Without these learning would be impossible.

Since perception is the interpretation of sensation, it follows that

this interpretation may be correct or incorrect. Hence, it happens that perceptions may be true or false. False perceptions are classed either as illusions or hallucinations. Both differ from true perceptions in the fact that there is a contradiction in these latter between the immediate and the wider experience. However, the illusion is a *normal* false perception, while the hallucination is a sign of *abnormality*. It is not in any way an indication of an unbalanced mind to see a mirage on the horizon; all normal individuals placed under similar conditions will see it. On the other hand, the person who sees shadowy forms and hears voices plotting his destruction may be the victim of some temporary or prolonged mental disorder.

IMAGINATION AN ESSENTIAL FACTOR IN BEHAVIOR

Care must be taken to distinguish between false perception and imagination. In popular thinking and even in the discussions of psychologists, much confusion prevails. Imagination is often thought of as unreal and deceptive, when in truth it is not. It is as real as is perception, of which it is a reproduction. Through imagination objects not immediately present to the senses are experienced. In genuine imagination, however, these objects are never experienced as actually present. In the imaginary experience there is always the knowledge that the object is not immediately present. When the object of sensation is experienced as immediately present to the senses we have perception, either true or false, as the case may be, but never imagination. The difference between perception, together with illusion and hallucination, on the one hand, and imagination, on the other, may be illustrated by the following example:

The paper on which I am writing these words I see before me; I experience it as actually present to the senses. I then have a perception. I may, however, doubt the reality of this perception and I set about to test it. I reach out my hand and I touch the paper. Further, I hear its rustle and recognize its weight. My immediate experience of seeing the paper agrees with the wider experience of touch, pressure, and hearing. I, therefore, conclude that the original perception is true. Suppose, however, when I had put forth my hand to touch the paper no sensation had resulted. I would then have concluded that the original experience of seeing was a false perception. It would be either an illusion or hallucination. I must further test my experiences to determine which of these two false varieties of perception the particular experience is. If a friend is in the room, I ask him if he, too, sees the paper. If he replies that he does I then conclude that the perception is an illusion and not an hallucination. If, however, he replies that he does not, and further, if others agree with him, I must conclude that my visual experience is abnormal in some way and, therefore, is to be classed as an hallucination. Suppose again that I see the paper before me and then close my eyes and revive the visual

experience through a mental image. I do not for a moment confuse this imaginary experience with the perception. I do not get the impression that the paper is directly before me as a visual experience. The act of imagination is not essentially false. Indeed, it is no more false than is perception. If my imagined object will agree with my wider experience in regard to the object, it is true; if it will not, it is false. I imagine the streets of a certain city. Later I visit the city and I find that my mental image is sufficiently accurate to enable me to find my way about the city. Thus my act of imagination agrees with my subsequent experience and, therefore, must be considered correct. An inventor constructs in imagination a complicated mechanism that later on is actually made and works as planned. This act of imagination is, therefore, true. If, however, I had found that my mental image of the streets of the city was so erroneous that it was of no value to me in finding my way about the town, then the act of imagination would be false. If the imaginary mechanism cannot be perfected so that it works, then the act of imagination that created it is false. This insistence on the fact that imagination is not necessarily untrue and that the reality of its object is to be measured by exactly the same standards as is the reality of the object of perception, is necessary in order that we may consider the educational value of imagination and its service in the process of learning.

Reality of Imagination.—Through the mental image the past is reinstated; our thought processes are built up on the imaginal elements that lie at their basis, while the works of art, the discoveries of science and the conduct of the practical affairs of life are dependent to a large degree on a vivid constructive imagination. So it happens that imagination, instead of being in essence unreal, is one of the chief avenues through which reality is opened up to the individual. It is fundamental to effective behavior and must be considered in all forms of learning.

Types of Imagination.—Imagination, as a simple reinstatement of the past, revives former experiences in terms of the original sense experiences of which these images are the reproductions. It would, therefore, seem to follow that there are as many types of imagery as there are sense departments. Whether this is true or not, it may reasonably be assumed that there are at least three important types of imagery in which we do our thinking. These are the visual, the auditory, and the kinesthetic. A large number of experiences are reinstated and reconstructed as visual ideas. We sometimes think in terms of our auditory experiences; but the majority of individuals revive a large number of their experiences in terms of movement. Kinesthetic imagery shares with the visual type a very important place in the thinking of the average individual.

School instruction seems to have relied too largely on visual imagination in educating the child. The auditory and the kinesthetic should be given a more important place than at present. All types should be appealed to, particularly the kinesthetic. When an essential type is lacking or weak it should be developed through special training. Some

children who are not feeble-minded are defective in certain forms of imagination. The pupil who shows on the whole normal intelligence, but who learns with great difficulty to read, should first be tested to discover whether his eyesight is normal. If no sensory defect is found, he should further be tested as to his visual and auditory imagery. There are cases in which poor readers show symptoms that seem to be similar to a visual aphasia. They interpret visual symbols with great difficulty. Such children should have special training in visualizing, for while such a defect in all probability cannot be entirely overcome by education, much can be done to improve the original insufficiency. Children should be trained more than at present to think in kinesthetic ideas. This means that they should be educated to express their thoughts accurately through speech, hand movements, and gestures. They must learn to talk distinctly and clearly, to write nicely, to construct mechanical devices and useful objects of service to themselves and to others, and finally they must be educated in dramatic expression. Instruction in handwork and in acting are of great educational value to all children, but particularly to the feeble-minded. The expression of thought in terms of bodily attitudes, gestures, and facial changes is fundamental. It is an earlier form of language, doubtless, than spoken words. It, therefore, makes a special appeal to the little child and to the older pupil that is backward or subnormal. It should be used more frequently than at present as a distinct educational device. Through dramatization and acting much of importance may be taught the children, particularly in literature and history. This form of instruction, too, has the added advantage in that it makes a strong appeal to the play spirit.

The mental image may be considered not only from the point of view of the sense department to which it relates; it may further be thought of as either concrete or symbolic. The concrete image is the image of the definite sensory object from which it arises, while the symbolic image is a reinstatement of the object in terms of a symbol which stands for that object. For example, I may revive the experience of a book either as an image of an actual book, or as an image of the symbol that represents book, usually the spoken or written word. The symbolic form of imagery is characteristic of mature minds, particularly of educated persons. Indeed, in ordinary school instruction there seems to be a grave danger that the normal child may get so far away from the reality for which the word stands that his whole thinking shall become devitalized and to an extent shadowy and unreal —that it shall be mere words. It should be kept in mind, on the other hand, that symbolic imagery is absolutely necessary for any elaborate form of thinking, and that the feeble-minded must be taught if possible to think in symbolic forms. It would, therefore, be unwise to instruct them in concrete materials beyond the point where their weak intelligence makes it necessary. If they can comprehend to a degree abstract number relations, for example, they should no longer be kept solving the more simple problems, or when engaged in the common arithmetical

processes, constantly at work with kindergarten methods in which splints, blocks, measures, weights, and like concrete materials are employed.

Constructive Imagination.—One of the chief values of imagination as a means of education is to be found in the fact that in fancy the details of previous experiences can be recombined in new and original forms. As has already been said, constructive imagination lies at the basis of artistic creations, of achievements in science and in practical life. Through constructive imagination the individual is capable of forecasting the future to a degree and his conduct is correspondingly determined. Therefore, imagination becomes ethical in its significance. Not infrequently the difference between right and wrong conduct is a matter of the ability to imagine the results of different kinds of behavior. While it is true that creative imagination thus serves a valuable purpose in a distinctly practical way, there is danger in an excessive play of fancy, since through it there may be created imaginary objects that are totally fantastic and unreal. The child with an extremely vivid imagination may thus by its exercise remove himself from the ordinary world of reality and be quite out of touch with his environment. In such individual cases the exuberance of imagination should be held in check and the child compelled more and more to conform to a world of unyielding fact. The great mass of children, however, are not excessively imaginative. Imagination for them extends their world, stimulates their mental processes and arouses their interests. While there are certain materials of instruction that must be presented definitely and accurately, there is a large scope for the play of healthful fancy. The dull child in particular needs his wits sharpened and his horizon expanded. There is little danger of stimulating his imagination excessively. However, it must always be kept in mind that the subnormal child is less able than his more fortunate companions to distinguish truth and falsehood, reality and unreality. Care must, therefore, be taken to prevent his imagination from putting him out of contact with his actual environment. The skilful teacher can determine where helpful imagination leaves off and dangerous fancy begins.

THE FUNDAMENTAL CHARACTER OF MEMORY IN DETERMINING BEHAVIOR

Memory is a fundamental phenomenon of all organic life. In its widest sense it signifies the fact that impressions once received by an organism are retained for a greater or less period and that this retention is indicated in the modified behavior of the organism. The evidence of memory in animals is their ability to profit by experience. A white rat is placed at the entrance of a maze at the centre of which is food. The animal moves about in an aimless manner until at length it reaches the centre. If on succeeding trials the rat shows an improve-

ment in the accuracy and rapidity with which it moves about the maze, this means that its earlier attempts have in some sense left their effect; they have modified subsequent conduct. Memory when used in this widest sense of the term lies at the basis of all learning. It is a measure of educability.

Signification of Term Memory.—However, we ordinarily employ the term memory in a much narrower sense. It is used to signify the revival of past experiences in consciousness, and, furthermore, the recognition of such experiences as past. When I remember in this restricted sense, I recall something that has happened and I also have the additional *knowledge* that it has happened in *my* experience. This recognition of an event as belonging to the past may range from a vague "feeling" of familiarity to a definite location of the circumstance in time and place. It can be seen for memory to be effective in modifying conduct, that it is not necessary that the materials revived should have this exact setting in every instance. Some things we must remember precisely and definitely in order to get on in the world. We must be oriented as to our surroundings and the lapse of time; we must be able to remember definitely some of the more essential happenings in our recent experiences, and so on. Other things we need to remember only in the sense that we can recall them to mind, not in the sense that we have any definite knowledge of how or when they first became a part of our individual experience. There are still other things which need not be recalled in conscious terms at all in order that they may be valuable as elements in our past experience that contribute to the present. An illustration will serve to make this fact clearer.

If I am writing a letter to a friend, it is necessary that I definitely remember the date and the place from which I am sending the letter. It is also necessary that I recall what I have written to my friend on previous occasions and what he has written to me. In these particulars I require a memory of the type that recollects the past in its appropriate setting. However, I need not recall in this manner the multiplication table. When I think of "six times three," there comes to my mind "eighteen." I remember that six times three are eighteen, but I do not need to recollect the circumstances under which I learned the fact. Indeed, such a memory would be worthless; more than that, it would be cumbersome. When I am writing the letter I do not need to be conscious of the manner in which I am forming the various characters; not only do I not need definitely to recall the details of my earlier experiences in learning to write, I do not even need to remember how to form the characters. This has all become a matter of habit. To have a definite memory in these particulars would upset our behavior. Yet we do remember how to write in a very real way although the details of the process are only dimly in consciousness.

In order that the past may reappear in consciousness three things are necessary. In the first instance the event to be remembered must have been observed. It must have been to a greater or less degree in attentive consciousness. It is not sufficient to present a fact to a

pupil; he must further give his mind to it. Without a reasonable amount of attention memory is impossible. In the second place, that which is to be remembered must make a definite impression; it must be "stamped in," so to speak. However, to be recalled it must further be properly associated. Various memory defects are to be explained in terms of these three mechanisms of memorizing. If the ability to observe is weak, little can subsequently be recalled. However, if attention is of the best and the ability to receive impressions and to hold them is weak, the result is again an inability to recall. Further, it may happen that the circumstance to be remembered is duly attended to and properly retained, but the associative bonds which unite it to other conscious experiences are not well formed; then again recall is correspondingly weakened. Facts that have recently been learned must be given an opportunity to become associated with other facts if they are to be of subsequent use. If the fact is not easily impressed on the mind it must be often repeated to make it possible for this association to take place

Falsification in Memory.—Falsifications in memory are as important as, and perhaps more dangerous than, actual forgetting. These are produced by various causes. One of the most common of these is transposition and substitution. Facts and events are taken out of one setting and placed in a different setting, and thus while the details may be correct, the relations may be seriously wrong. Akin to this tendency of memory to misplace its elements is that of filling in those parts of the recalled experience not actually remembered according to habit. The fact that events do generally occur in a certain manner leads us unconsciously to assume that the particular event recalled has followed the usual course. Hence, we may get the impression of remembering those things which we have not actually experienced. Suggestion, especially in the case of young children and the feeble-minded, often acts as a powerful influence in determining the recall of the details of an experience. For this reason it is very difficult to discover the entire truth through questioning, especially if the questions are at all suggestive. Children should be taught so far as possible to recall on their own initiative; questions should not be asked until the child has told all that he possibly can without assistance; further, the subsequent questions should be framed in as objective a manner as possible.

Tests for Memory.—It is not desirable that all recall should take on the same form. There may be various tests of memory for various kinds of material and for various occasions. The most common memory test is that which judges retentiveness by the number of details which the person who is being tested can bring back. This applies, for example, to the learning of important dates in history, or of principal cities in a country. Another test for memory is the amount of time spent in relearning material that has previously been memorized. The shorter the time of relearning, the greater is the amount that has been retained. Many facts the details of which have been forgotten are in a very real

sense in memory, since they can be relearned with much less effort and in a shorter time than that which was employed in the original learning. Still another test for memory is the ability to recall some fact or circumstance connected with a second, when this latter is present in consciousness. These three types of memory may be concretely illustrated as follows:

A pupil is learning a vocabulary in a foreign language. The extent of his acquisition may be tested, first, by the number of words that he has studied that may be recalled without assistance; second, by the comparative amount of time it takes to relearn the vocabulary that has previously been mastered, and finally, by the ability of the learner to give the English equivalent of a word when the foreign word is presented, or to give the foreign equivalent when the English word is in question. Obviously for this particular form of learning this last-named test is the most satisfactory.

Still other tests for memory are the ability to recognize something that has been previously in consciousness and to recombine in their original form materials once presented together but later given separately. As illustrations of these two last-named tests the following are important in school procedure:

If a boy were to be tested as to his knowledge of the use of tools in his manual work, he would not be asked to give a list of these tools and to describe how they are employed. The test would quite obviously be to show the tools to him and then to find out if he recognizes them; that is, if he knows how to use them. A test as to the acquaintance that he possesses in regard to a piece of machinery might well be made by taking the machine apart and then requiring him properly to assemble these parts. Such a test would show much more about the boy's actual knowledge of the machine than would any verbal description that he could give of it.

It is quite obvious in the light of the above considerations that any single test for memory is entirely inadequate. The particular test that is to be applied in any given instance must depend on the nature of the material, the object for which it is learned, and to an extent, on the age and capacities of the learner. Certain it is that the test which measures memory entirely in terms of that which without assistance of any sort may be reproduced is quite inadequate for all forms of retention. It has been relied on too exclusively in the education of the child.

Improvement of Memory.—Since two main elements in all recall are impression and association, it follows that improvement in either of these factors will tend to improve the memory as such. The retentivity seems to be largely a matter of the capacity of the nervous system to receive impressions and preserve them. This is clearly shown in certain abnormal states of consciousness which are directly connected with demonstrable lesions. The loss of memory as the result of specific infections and in senile dementia is due in part to loss of retentivity in the nerve substance apart from impairment of the

associative processes as such. It was long ago pointed out by James that the retentivity was not a matter that could be modified or improved through education. The improvement must be rather in the nature and the strength of the associations by which the recall is brought about.

To insure that the material to be learned is adequately impressed on the mind the learning must often be repeated. However, mere repetition is not sufficient for securing impression; the repetition, as has been said before, must be accompanied by well-adapted attention. To insure that the facts to be remembered are properly associated they should be given as much meaning as possible. The greater the meaning that any fact possesses the more are the associative links that connect it with other facts. It should be the aim of education to give a meaning to every fact that is learned. The pupil should be able to see how it is related to all other facts that belong to the subject of which it forms a part. However, with young children and the feeble-minded it is less possible to give the material learned meaning and hence, repetition and drill find a much larger place in learning among such pupils than they do among those who are older or more intelligent.

Vividness of impression is important in securing attention to the materials studied. This vividness may consist in the strength of the stimulus or in the significance which it has for the individual. Usually, for normal and mature minds the vividness is of this latter subjective character. However, for immature and weak minds the objective vividness is the principal factor to which the appeal can be made. Under such conditions, by the sheer intensity of the stimulus only, can the object be brought into attentive consciousness.

Methods of Memorizing.—Experiments seem to have demonstrated that certain forms of memorizing are more economical than are others. What is called the "whole method" of learning as distinguished from the "part method" is a case in point. In the whole method the material to be learned is studied from beginning to end again and again until it is entirely mastered; in the part method a certain portion of it is learned, then another, and so on until it all can be repeated. It has been found generally that the whole method is better both for immediate learning and for retention than is the part method. There are, however, certain limitations to this statement. In the case of the young child the whole method has the disadvantage, particularly if the material to be mastered is of some length, of affording little opportunity for the learner to note his progress. For example, if he is learning a poem by the whole method, he may read it over several times before he can reproduce a single line from memory. He, therefore, is likely to become discouraged and this attitude of mind will affect unfavorably his ability to learn. If, on the other hand, he is memorizing the poem stanza by stanza, he can easily note his progress after a short time, and this adds zest to the learning. Further, in memorizing by the whole method, the learner discovers after a time that he has certain parts of the material

well in mind, while other parts are still unlearned. If he continues to study by the whole method after this point is reached, he will be obliged to spend an undue amount of time on certain parts that are easily mastered in order sufficiently to emphasize the harder parts. To obviate the first of these difficulties the child in learning by the whole method should be encouraged in every way possible to continue his efforts until he has become sufficiently familiar with the material to be aware of his progress. He should be definitely told that this is the better method of learning, and he should further become habituated in this method, when its advantages will be apparent. If, however, his intelligence is so weak that he cannot thus be stimulated it is probably better that he learn by the part method. To obviate the second difficulty spoken of above, there is an advantageous variation in the whole method that consists in stopping for a time and giving special attention to the more difficult parts, after which learning by the whole method is continued.

It has generally been found in learning any material on which considerable time must be spent that it is more economical to split up the learning into various sittings and not attempt to master it all at one period of study. A concrete illustration of this is the following: It may require two hours for the child to master a chapter in his history lesson if he attempts to learn it at one sitting. If, however, he spends a half hour on it today, another half hour tomorrow, and so on until he has finished the task, he will find not only that he will learn it in less time, but that he will probably retain it longer. The younger the child the more advantageous brief periods of study, distributed over a considerable period, seem to be.

Recall seems to be a very important factor in facilitating learning. By recall is meant bringing to mind the material that has been studied when that material is no longer immediately present to the senses. Recall should be practised during the actual learning and also during periods between learning. It is well to habituate the pupil in spending a brief time after each study or recitation period in reviving what has been previously presented. It is particularly important for the learner to use recall to discover the extent and direction of his errors and also the weak spots in his learning. He often thinks that he has mastered a task, when he has never put himself to the test of discovering just how much he knows. When this test is at length made, he finds that his knowledge is very incomplete and inaccurate.

It seems to be a well-settled fact that memory cannot be trained as a general "faculty" of the mind. Improvement in ability to commit to memory selections of prose and poetry, does not of necessity mean improvement in memorizing other kinds of material. The chief way to secure greater ability to memorize in general is to train the learner in the technique of memorizing; in other words, to habituate him in rapid and effective adaptation of attention, in methods of economical learning and the like. It is particularly important that the learner

be conscious of the technique that he is employing and that he strive to perfect this technique.

Association in Memory.—As has already been said, association is one of the fundamental elements in memory. Without it, in all probability, recall would be impossible. Everything in the mind, however apparently fantastic and incoherent, is there because it is joined through association with something else. Nothing appears in consciousness by mere chance. Hence it is, that our dreams can be rationally interpreted under certain conditions; hence it is, that the utterly unintelligible flight of ideas in certain psychotic states may be of significance and worthy of study. Not until the mind is completely broken down does association relinquish its hold on the mental elements. The highest and most significant forms of association are those in which the connections are between those elements that move on in a definite way toward some specific end or goal of the thought processes. Such associations find their best exemplification in logical reasoning and in all those mental processes in which a strict control is exercised over all of the elements that enter in to make up the thought movement.

There are, however, much more superficial forms of association in which the connection between ideas seems inconsequential. One word brings up another, perhaps because of some similarity in sound, or because the two are often found associated together in common experience, rather than because these associated ideas possess a relationship in terms of meaning. Sometimes again we find the entire trend of the associations dominated by some fundamental complex of ideas of which not infrequently the individual himself is not aware. In cases where the associations seem unusually weak we find a tendency for the same idea to appear time and time again with apparently little cause. We find these various kinds of association in the processes of both the normal and the abnormal mind; trivial and superficial associations characterize the mind of the normal individual in his lighter and more relaxed moods. They are also to be found in the mental processes of the manic patient. Rational control of the thought processes, while generally characteristic of the vigorous and educated mind, is not entirely absent in the mind of the insane, as the systematized delusions of the paranoic often show; the weakening of associations and the consequent appearance in consciousness of stereotyped and persistent ideas, is characteristic not alone of the demented patient and the feeble-minded, but also of the normal minded in conditions of fatigue and the like.

The most valuable form of association is found in those states of consciousness in which the various ideas are definitely controlled by an *internal purpose* and are moving consistently in some clearly determined direction. The ideas that appear under these conditions do not seem to be haphazard in their nature. They exist for a definite purpose. It should be the aim of education to secure as far as possible this type of association. Even with the feeble-minded something can be done to make them understand that a problem exists to be solved;

that a situation is present that requires immediate attention and that to solve the problem, to master the situation, the individual must always keep his mind on the problem, and give his best thoughts to the situation, if he hopes in any way to get valuable results. Consistent and sustained attitudes of mind, resulting in definite and effective behavior, must have as their most essential characteristic this higher type of association. It is most important in the education of both normal and abnormal individuals that situations requiring this kind of mental ability be presented to the learner.

ATTENTION IN ITS RELATION TO BEHAVIOR

In the preceding pages attention has been referred to from time to time and it has been insisted that it is an absolutely necessary accompaniment of learning. It is important to emphasize and to point out more definitely in just what ways attention is significant. Attention may be thought of as essentially the conscious correlate of behavior. When the behavior is sustained and consistent, when it works itself out in a series of related activities to some definite result, then the attentive consciousness is focussed on an end more or less remote and held there in spite of various distractions. When, on the other hand, the behavior is vacillating and uncertain, when it leads to no definite consequences, then the attentive consciousness is diffuse and fluctuating. Finally, when the behavior is purely habitual and is directed only toward an immediate end, then, as consciousness recedes, attention is correspondingly weakened. Thus it is that attention and behavior are closely correlated. A certain type of behavior signifies a corresponding type of attention, while a certain type of attention assures its related form of behavior.

Types of Attention.—Passive Attention.—An important analysis of attention from the standpoint of educational theory and practice divides it into three main kinds—namely, "passive" attention, "active" attention, and "secondary passive" attention. We all start in life by giving passive attention. Consciousness focusses itself only on those objects that "seize hold" of the mind, so to speak. This kind of attention is always immediate; that is, it is not directed toward remote ends of action. There is no conflict among the mental processes themselves, for only one object claims attention. As the intelligence of the individual develops there comes with this increasing development greater and greater ability to hold in consciousness ends more or less remote, and to keep these before the mind in spite of tendencies to turn elsewhere. Corresponding to this attitude there is a distinct consciousness of effort on the part of the individual; he gets the impression that he is controlling his thought processes; there is a "will" attitude. It is for this reason that this form of attention is sometimes called voluntary.

Active Attention.—Active or voluntary attention is the chief characteristic of developed minds and of higher intelligence. It seems

probable that the animal is incapable of giving it, and it is extremely difficult to secure it in the case of the little child and of the feeble-minded. Without it the possibility of education that rises above the plane of habit seems excluded. Without it, too, self-direction seems impossible, for the individual is at the mercy of his environment and is the sport of every chance. For these reasons the inability to give sustained attention is to be taken as one of the chief characteristics of a weak or degenerating mentality.

Secondary Passive Attention.—Active attention gradually passes over into secondary passive attention. Those things to which we originally give attention with the consciousness of distinct effort we later attend to spontaneously. The bank clerk who at first takes no pleasure in adding the long column of figures, and who keeps at his task, as far as it is not a matter of habit, because he remembers that pay day is coming, or because he hopes that his diligence will secure for him promotion, later acquires a different attitude. While at first he gives active attention and sacrifices immediate pleasure for a remote end, he at length finds an interest in his task as such. It is an underlying fact of mental life that this substitution is made. Invariably to that to which we gave active attention at one stage of our experience, we give later secondary passive attention. Secondary passive attention resembles primary passive attention, except that the latter is instinctive, while the former has been acquired through a preceding period of active attention. Thus we start life equipped solely with primary passive attention; then to some things we give active attention; this in turn is transmuted into secondary passive attention and the whole process is begun over again as long as we continue to advance. Only when habits have been fully formed, only when we have reached the limits of educability, do we cease to give active attention to the novel features of our environment.

Sensorial and Ideational Attention.—Attention has sometimes been described as sensorial and as ideational. Attention that we give to the concrete object immediately before us is of the former type, while attention that is given to an idea is of the latter form. The developing mind first gives attention to its sensory experiences exclusively. Later on it attends to its thought products. The weak-minded live almost exclusively in a world of sensation. However, the unbalanced mind may give attention to a system of ideas to the exclusion of its immediate surroundings. A judicious balance between these two types of attention is a characteristic of normality.

Mental Fatigue.—Attention is closely related to so-called mental fatigue. In normal individuals mental fatigue in the sense of actual nervous exhaustion is extremely rare, even in children. The person who is supposed to be tired because of his work is generally distracted from it. He is tired *of* his work, rather than tired *by* it. Work within reasonable limits is beneficial mentally, as well as physically. It often comes as the greatest of blessings to the individual with feeble or distracted intelligence. It thus becomes a valuable means for the educa-

tion of the feeble-minded and for the reëducation of the neuropathic and the psychotic. When the physical and the mental state permits, the individual is greatly helped in his intellectual and his affective life by having some definite occupation to arouse his attention and to hold his interests.

RATIONAL THOUGHT IN ITS RELATION TO BEHAVIOR

Attention is closely related to rational thought. In thinking the thought processes flow along toward some end either clearly defined or vaguely experienced. They develop in a more or less definite way, unless the thought processes are completely broken down. Sometimes when the thought processes seem entirely mixed and meaningless they are controlled by repressed ideas, as in the case of dreams and various abnormal psychoses. Thought not only moves on toward some end, but it employs the mechanism of images and ideas in its workings. We could never think in purely perceptual terms. If we lived in a world of immediate concrete reality our experiences would be entirely determined from the outside. Hence, we could not think. Logical thinking differs from the more simple varieties of thought in the fact that the latter is a subjectively controlled process in the sense that there is some definite end to the thought process that is held in mind through active attention. Logical thought requires that its goal shall be in consciousness and that the thinker shall select those elements in the conscious process that definitely lead to this goal and shall rigorously exclude all other elements, those that for the purpose at hand are irrelevant. It is important, however, that in this exclusion of material the mind be kept in touch with reality and open to the reception of truth, whatever its source. The good reasoner is the person who is able to hold his attention upon his ultimate purpose, who is able to select his materials according to certain definite points of view, and who nevertheless is in a receptive frame of mind, so that he can comprehend conflicting facts and see new points of view. A person may so shut himself up within a system of ideas that he is quite incapable of penetrating beyond them. In themselves they are rationally related and seem consistent, but they may be quite divorced from real life and hence entirely misleading. Such, for example, are the mental processes in certain paranoid states.

Logical thinking is required when there is a definite situation of some degree of complexity that needs to be met and solved. Through logical thought this situation may be met ideationally in advance, without the necessity of trial and error. Behavior is at once raised to a higher plane, when it can thus be guided. As we have already seen, the animal is not capable of so directing its behavior. It learns largely through the slow process of trial and error, for it is not capable of the formation of free ideas, nor of giving sustained attention. Only when active attention is present, only when ideas gained from the past are

able to function in a new experience, is rational thinking possible. Logical thinking works through the mechanism of conception, judgment, and reasoning in arriving at its conclusions. Behavior resulting from this type of thinking consists essentially in reacting to new situations in certain typical ways. In the new there is an element of the old that gives the cue to the behavior demanded at the present time. It is this ability to see the relation between the past and the present which is the surest indication of an intelligent mind.

The individual acquires the ability to reason only through the stress of novel situations, situations that present a problem to consciousness and which demand a type of behavior that goes beyond habit. It is, therefore, necessary, as has been said previously, in teaching the child to reason to confront him with real problems to solve. These should never be so difficult as to be beyond his actual abilities, but, on the other hand, they should not be made so simple as not to require sustained thought. These may be presented either in concrete or in ideal situations. A problem in number work is of the latter type, while one in construction in the wood shop is of the former. The more simple problems can be presented best in concrete form and can be mastered by minds that cannot think in more abstract ways. If reason is to be developed through manual training and similar methods of instruction care should be taken to compel the pupil as far as possible to "see ahead" in what he is making. He may accomplish the task by a process of mere trial and error, if left merely to his own devices.

It has already been said that the person who reasons well must have a mind that is capable of receiving truth, from whatever source it may come; otherwise the results, though apparently rational, may lead to the most undesirable conduct. In the experiences of the individual, whether normal or abnormal, and in those of the community at large, there are ample illustrations of the effect of the sort of false reasoning that is false not because the logic as such is faulty, but because the ideas that enter into this logical system are exaggerated. There is no great delusion that has taken possession of the mind of the individual or of the community that has not had its logical proofs. The only trouble with it often has been that it has not worked. It would not square with the wider facts, and the conduct resulting has thus been inadequate for the situation in its larger relationships. Hence, it becomes necessary in educating the child to reason well to keep him in touch with reality as far as possible. He must think through ideas, it is true, but there must be many ideas accessible to him, and there should be the constant corrective of experience by which the thought processes may be tested. Further, the individual who is to reason well must feel the value of getting at the truth; he must desire to know the facts and be unwilling to be deluded. If the problem that he is solving has for him some practical significance and some genuine interest, he is more apt to adopt this attitude than if it deals with matters that are remote and abstract.

FEELING AND EMOTION IN RELATION TO BEHAVIOR

In discussing the conscious correlates of behavior we have so far emphasized those that relate primarily to the intellect. Sensation and perception, imagination, memory, and association, attention, and the higher rational processes may be thought of as belonging to the noëtic phase of consciousness; that is, the phase which is characterized by knowing, as distinguished from feeling. It is to this latter phase that we now turn to consider its importance in education.

Definition of Feeling.—The term feeling has been variously used, even by psychologists. It sometimes is employed as a synonym for consciousness itself, as in such expressions as "feelings of relation;" again, it is used to indicate a state of dim awareness as distinguished from clear apprehension. We say that we have a "feeling that a certain thing is so," when we mean that we have no definite knowledge, but rather a vague impression. In the strictest sense of the term the word feeling is used as equivalent to affection. The affective consciousness is to be distinguished from the noëtic consciousness (the consciousness through which we know) chiefly by the fact that it is the former that gives value or worth to experience. Mere knowing as such leaves the object of knowledge quite indifferent. The eye of pure intelligence sees all things in a cold and colorless manner. Everything is of equal importance, for nothing makes a difference. On the other hand, feeling gives a *warmth* and *glow* to experience; it reveals a world filled with *worth* and pulsating with human *values*. In normal experience these two aspects of consciousness are properly balanced. Our feelings do not completely dominate us, neither are we indifferent to the changing experiences that surround us. In abnormal states, however, this balance is no longer preserved. There is sometimes great excess in the affective reactions and sometimes an astonishing indifference. Marked abnormalities in the affective tone of consciousness are extremely important in the diagnosis of the mental condition of a patient.

Simple Feeling.—Simple feelings vary between pleasantness and unpleasantness. Although some psychologists, notably Wundt, have assigned to them other characteristics, there seems to be little evidence that they possess more than these two qualities. Pleasantness and unpleasantness cannot be described. They are ultimate elements of consciousness that resist further analysis. An attempt has been made by some to show that these affective qualities are at basis two kinds of sensation. This attempt, however, has not resulted in any large degree of success. It is true that a considerable number of unpleasant experiences are attached to pain, and pain is today recognized as a distinct sensation. It is to be remembered, on the other hand, that there are many unpleasant experiences that cannot be justly described as painful, except as a figure of speech. We sometimes speak of bitter grief, but we do not, of course, mean that the grief is bitter in the literal sense

of the term. No more should we mean that the news that we receive concerning the loss of a friend is painful in the same sense that the prick of a pin or the cut of a knife is painful. Further, it seems true, not only that all unpleasant experiences are not painful, but that certain mild pains may at times be agreeable. It is even more difficult to show that pleasure is a sensation than it is to establish this contention in regard to pain. There is in the first place no sensation that is as uniformly agreeable as the painful sensation is unpleasant. It has been suggested that the sensations of itch and tickle may be considered as original sensations of pleasure, but analysis will hardly bear out this contention.

While it is true that pain, a sensation, is not to be identified with the unpleasant experience as such, nevertheless in the most primitive forms of experience it must be regarded as the chief if not the sole accompaniment of unpleasantness. To this primitive experience of physical suffering the appeal must be made when other means of correcting undesirable behavior fail.

Complex Feelings and Emotions.—From the simple feelings must be distinguished certain more complex forms of affective experience. Chief among these latter are the emotions. Emotion is not to be thought of as merely intensified feeling, though it is true that the affective consciousness is unusually pronounced in these emotional upheavals. An emotion must be regarded as an extremely complex state of consciousness in which the affective element, while very prominent, is not the sole factor. In the first place an emotion always has an object, while a mere feeling does not. I may feel pleasant or unpleasant without recognizing any definite object to which such feelings attach themselves. On the other hand, if I am afraid, I must be afraid of something. When there is no immediate external cause for the fear, when it must be considered entirely morbid and in no way justified by external circumstances, still it tends to take on in the mind of the sufferer an objective reality. Even in the case of phobias, when the patient realizes that the fears are groundless and tries to banish them, still this objectification takes place. Such a patient may dread the end of the world, for example, and while acknowledging that there is no rational basis for this dread, still contemplate the irrational object in which the emotion centres. In such a case, while the object of the emotion cannot be thought of in any true sense as the cause of the emotion, it still seems to be its necessary accompaniment and to give to the emotion a body that it could not otherwise possess.

James-Lange Theory.—Much has been written in regard to the sensations of bodily change that form a part of all strong emotional experiences; indeed, probably of all experiences that may be called in the strictest sense of the term emotional. So important are these experiences of bodily disturbance in the emotion that in the so-called "James-Lange theory" they have been given the place of supreme importance. According to this point of view they are the real essence of the emotion. In other words, it is held that the sensations arising

from changes in respiration, circulation, alimentation and the like, that dermal sensations such as chills and cutaneous shivers are the essential nature of the various emotions which they accompany; that indeed they are these emotions. While this seems an overstatement of the facts, it is doubtless true that they form a very important part of all emotional experience and that without them no emotion would be entirely complete.

The Essence of Emotion.—The most essential characteristic of an emotion seems to lie in the fact that it arises in a situation that for the time being offers no definite opportunity for reaction. There is no form of behavior that is even relatively satisfactory. The individual is at a loss what to do; his attention is correspondingly in a state of fluctuation and his ideational processes obscured. Usually such a situation as this develops rapidly. If the individual has the opportunity to anticipate it in imagination he may approach it with calmness. However, it comes upon him suddenly and he finds himself incapable of meeting it, either through definite acts or through the representation of such acts in terms of ideas. Consequently, all his behavior is indefinite and uncertain, the attention shifts rapidly from one aspect of the situation to another, the thought processes become confused and clouded, while the pent-up energy, finding no adequate means of expression, sends its discharges ineffectually through old channels that may have been of some definite service in the early history of the race, but which have long ceased to have any value as effective modes of behavior. Hence, the wild beatings of the heart, the rapid respiration, the sensations of nausea and the like that accompany certain forms of emotional, excitement. In such a situation as this, if something *definite* can be *done*, if a sustained activity of any sort can be carried to its conclusion, then the emotion passes away, for the essential condition that gave it birth is no longer present.

It has been pointed out that emotion and instinct are closely related. It is true that the most violent forms of emotional experience arise when an instinct has been blocked in its course and cannot attain completion. However, in its unchecked expression instinct, while accompanied by an affective tone of considerable intensity, is without emotion in the sense in which this term has been employed in the above discussion.

Moods.—An emotion, when it has run its course, often passes over into a permanent attitude or disposition that may be termed a mood. This mood may be the deciding factor in future reactions and under the proper conditions may be the starting point for another emotion similar to the original experience that evoked the mood. Thus the mood may be looked upon both as the end and as the starting point of an emotion. It represents a permanent tendency to react in a certain characteristic way and in this respect resembles the instincts.

The Temperament.—An inborn tendency similar to the mood, but unlike it not developed through experience, is the temperament.

An individual's temperament conditions to a large degree his affective attitude toward his environment. It is generally possible to trace in certain forms of mental abnormality the prevailing temperament of the individual. This is particularly true of the manic-depressive group of mental disorders, and indeed in other forms of abnormality where the affective elements in the morbid psychosis play an important role.

Relation of Affective Aspects to Behavior.—The significance of the affective aspects of consciousness in their reference to behavior is great. It is the feeling element that gives the final value to any experience, stamping with approval certain acts and with disapproval others. Those that result in pleasurable consequences tend to repeat themselves and become established as permanent habits, while those that are attended with unpleasant results are inhibited. The chick at first pecks at all sorts of objects, but soon learns to distinguish between the bad-tasting worm and the grains of pleasant-tasting food. In this way feeling exercises a selective control over conduct. The mistake must not be made, however, of supposing because we tend to perform those acts that result pleasurably and to refrain from those that issue in unpleasant experiences, that pleasure is the conscious end of conduct; that we set up pleasure as a goal to be definitely sought. Under normal conditions we have in mind the end of the activity as such and not the pleasure that is to result. Experience seems clearly to show that when the pleasure as such is made the conscious end of activity, it is not in any large measure attained. The pleasure seeker soon becomes *blasé;* nothing gives satisfaction.

Work.—It must be remembered that normally self-activity gives pleasure through its mere expression. It is agreeable in itself. It is the function of the unpleasant experience to check this self-activity when it expresses itself in ways dangerous to the organism; on the other hand, the pleasure of the self-activity itself and of the desirable results that flow from it when it issues happily are the incentives that call for its repetition. Of course, as has already been pointed out, there are certain activities that at first are unpleasant. These are persisted in only because the end seems desirable. At length through continued repetition the act itself becomes pleasurable as well as the results that flow from it. Work, then, in the sense of activity, becomes of the greatest value in securing the right attitude of the individual. It is generally recognized that it is good in itself apart from any consequences. It is well for this reason, as has been said, to find employment for all inmates of an institution. The economic or other advantages that may accrue from the products of this work are of small value as compared with the mental attitude resulting from healthful employment. This applies to all individuals, not only the normal, but the feeble-minded, the insane, and the delinquent as well.

It has been held by some since pleasure is so desirable as an accompaniment of behavior that the child should never be made to do anything that does not give him immediate pleasure; that his activities

should always be of the nature of play. While there should be joy in the doing, as much as possible, it is dangerous to carry this principle to the extreme. From what has already been said, it can be seen that in the course of normal development there must naturally arise in the life of the individual ideals of achievement that are highly desirable, while the means for gaining the wished-for end may be in the main irksome. It is the highest mark of human achievement, the surest indication of the effects of education, this ability to strive for the far off goal in the face of present difficulties, distractions, and allurements. There is nothing finer in human life, nothing that so distinguishes man from the brute, nothing that so much proves his superior intelligence and his nobler feeling. To say that the child should always follow the path of least difficulty is obviously false. However, we should remember that there is truth on the other side. The child with undeveloped mind and the child of feeble intelligence cannot long be forced to follow the path beset with difficulties. They soon become discouraged and lose all interest. Under these conditions learning is well-nigh impossible and progress ceases. The wise teacher is he who is able to make a nice adjustment between the two extremes—namely, that on the one hand, of never requiring the pupil to do anything except that which his immediate interests prompt him to perform, and that on the other, of demanding that he shall seek some remote end that appears to be so little desirable that it is not worth while to strive for it in the face of present difficulties and discouragements. The more undeveloped, retarded, or abnormal the intelligence the less possible will it be to hold up distant ends of action to the individual; there can be no long-continued and persistent striving, extending over periods of perhaps days, weeks, or even months. The goal must be one that may soon be reached and the end desired must have great affective value, usually of the cruder and less ideal sort.

Punishment.—It must be remembered in this connection that behavior is determined not only by the desirable end to be achieved, but by the undesirable consequence to be avoided. An animal may be taught to perform a certain series of acts by securing food as the result of successful behavior, or by being punished for failure. In the opinion of many psychologists the pain motive brings more immediate and lasting results than does the opposite. The animal will not strive consistently to reach the centre of the maze in which the food is placed; its attention is easily distracted and its behavior erratic, but if whenever it makes a false turn it receives an electric shock, it more quickly profits by this definitely unpleasant experience than it does by the mere failure to secure the food. This principle of conduct applies not merely to animals, but in a measure to human beings as well. Sometimes intellects dull of comprehension can be aroused in no other way to understand the situation that confronts them than through the stimulus of a definitely unpleasant experience.

Punishment, however, especially if it means the inflicting of bodily pain, should be resorted to only when other means have failed. The

total effect on the attitude of the individual is better if the desirable conduct can be secured through some other means. This principle does not apply with equal force when the punishment comes as a direct consequence of the act itself; when it is inherent in the nature of the act and is not administered from without. It is generally because the individual feels that he is unjustly punished by someone in authority over him that he develops a surly and negative attitude that often makes it impossible to guide him farther. This result is particularly likely to follow if the punishment is seemingly arbitrary and capricious. For this reason there is great advantage, particularly in dealing with children and the feeble-minded, in having framed definite rules, the violation of which shall result in punishment. When these are broken with full knowledge of the result that is likely to follow detection, the punishment seems much more a matter of course. It is particularly valuable that the punishment attach to the specific act itself, whenever possible, and that it follow the act immediately. If it is separated from it by any great length of time the connection between act and consequence is likely not to be recognized, and hence the value of the punishment is lost.

Importance of Simple Feelings and Emotions.—The importance of the simple feelings in determining behavior is quite apparent in the light of the above considerations, since they further, as a rule, those forms of conduct that are desirable and check those that are not. No scheme of education, therefore, can treat them slightingly. They are the necessary accompaniments and directors of all learning. The value of the emotions, on the other hand, is not so clearly evident. Indeed, they have often been considered as entirely undesirable, since they are accompanied by confusion in thinking and uncertainty in action. The intense affective state characteristic of the stronger emotions has a value in so far as the feeling influences action in the right direction. However, the general disturbance of consciousness and the ineffectual character of the behavior that result cannot, of course, be thought of as advantageous to the individual. It would seem that the emotion as such is never desirable; it is valuable only in its consequences. There are certain incidental values which arise through the effect that emotional expression produces in others. A manifestation of rage may strike terror to the heart of the individual toward whom it is directed, and thus indirectly be of benefit to the person who is in a rage. Generally the attitude of misery and despair calls forth the sympathy of those who witness it and consequently help is extended to the sufferer. Of course, the mere rage as such renders the individual who is possessed by it less able to act than if he kept a cool head, while the emotion of despair in itself hinders its possessor from meeting the situation before him in an effective manner. It is because of the result on others and their subsequent behavior in consequence of this effect, that such emotional expressions possess a value. An emotion is then of service in bringing about desirable attitudes in others and thus has an important social significance.

Effect of Emotional Experiences.—The great value of emotional experiences, however, is to be found in the fact that through the turmoil they cause there are made possible new attitudes and new trains of ideas, and these result in new modes of behavior. It sometimes requires a mental cataclysm to obliterate old and harmful habits and to substitute new and useful actions. During the period when the will seems paralyzed, when thoughts are confused and action vacillating and uncertain, the old and harmful habits that have dulled the mind and mechanized behavior are, temporarily at least, wiped out and the opportunity is thus offered for a new start and a gradual formation of a new set of ideas and of habits. The emotion is then to be considered from the physiological standpoint as a means of blocking old paths of discharge through the nervous system, and opening up new paths which may be utilized to advantage thereafter. On the mental side the emotion may be considered of service in casting out the old, stale, and relatively harmful set of ideas that have centred around certain forms of behavior, thus affording the opportunity for a fresh start and for the establishment of another set of ideas.

One of the best examples of the function of an emotional experience in preparing the way for a new set of adjustments is to be found in the religious emotion as it manifests itself in the various experiences attending "conversion." The old self, with its evil ways and base ideas, is adjusted to a certain situation, and for this situation the behavior may be relatively satisfactory. The mere feeling of satisfaction or discontent is not, however, sufficient to bring about a change in the established modes of behavior that have grown up through the years of experience. The individual does not get away from the "old self" so easily in most cases. He must be plunged into fears and doubts; he must experience despair; he must be thrilled with the agonies of a lost soul before a change can come about to free him from the habits ingrained in his character through many repetitions. All this unrest, all this doubt and hesitancy in action, this confusion of thought and waste of nervous energy is in itself considered bad; it is valuable only because it may lead to a new point of view in regard to life and to a new and better method of meeting its problems. The religious emotion as such is a disorganizing experience; it brings about a temporary chaos; but if from this travail of the soul there may be born a better life, then the emotion has its justification. Nations, like communities and individuals, sometimes need a complete upheaval in order to gain a new and better adjustment. There are examples from history where great reforms have been achieved by slow and deliberate processes, but again reform has seemed impossible and then only by a radical catastrophe has a better state of things been brought about. This is well illustrated by the circumstances attending the French Revolution. What is true of the religious emotion is true of all other genuinely emotional experiences. The emotional expressions of fear, anger, jealousy, contempt, joy, and grief; thrills of moral grandeur, esthetic appreciation and humorous incongruity are all in the last analysis

related to some incomplete and unsatisfactory mode of adjustment, and all have a value in their consequences rather than in their immediate expression.

Place of Feelings and Emotions in Education.—One of the most important problems that arises in connection with education is that of the place the feelings and emotions should occupy in the formal and incidental instruction of the school or institution in which the individual is placed. Until recently there has been a general tendency to disregard the importance of the affective aspects of consciousness. In the school the emphasis has been placed on mere intelligence, particularly on mere knowledge; and this in spite of the fact that mere facts have no value of themselves to direct conduct. It is only when these facts have some worth, when they are valuable to the individual, that they lead to action. There must be a glow of feeling, a desire, some form of approval, a prejudice, that attaches itself to the bare fact and gives it a sanction as an end to be attained. Even when the fact has no immediate practical significance, its value in relation to other facts may be recognized. For example, a date in history as a mere date, has little use, but when it is connected with events in which the pupil has an interest, the date becomes significant; it has worth because it has acquired a meaning. The parent in the home, the teacher in the school, and the leader in the community should all see to it that those whom they would educate are not given mere information, but that, in addition to the knowledge imparted, there should be awakened a genuine feeling that may lead to the desired behavior.

While all of this is so self-evident that it need scarcely to be pointed out, it has until recently been woefully ignored in educational theory and practice. Today, however, most teachers recognize the importance of simple feeling as a necessary element in instruction. The question of the place of the more complex forms of feeling, particularly the emotions, in formal education is not so easily determined. Some would insist that there is no place for emotional expression in the school and indeed little in life. We have seen, however, that emotion has a value in that it makes it possible for the individual and for the social group to break away from habitual modes of behavior that are undesirable and to set up more satisfactory forms of conduct. It makes a renaissance possible. The religious revival that sweeps a community often upsets things in general; women neglect their household duties and men slight their business; there is much purposeless activity, a waste of energy, a diffusion of attention that in itself considered is undesirable; yet if later the upheaval leads to a better attitude in the community life, to a more valuable form of behavior on the part of the individuals in the social group, the revival has served a useful purpose. If it ends in mere excitement, in religious and moral dissipation, so to speak, it is not to be justified.

What is true of the larger life in the community is true of the smaller life in the school and institution. The child should be stirred to emotional excitement only when new attitudes and new varieties of conduct

are demanded that cannot be secured in less radical ways. The individual who cannot be impressed with the desirability of right actions by ordinary means should be made to fear, the person who will not stand up for his own rights must be touched with the spirit of rage, if the proper acts of self-protection are to be set up. So it is with the higher emotions. Often the comprehension of a moral situation cannot be brought home to the individual until he experiences, either actually or in imagination, the struggle between good and evil impulses, the pangs of remorse and the exultation of a moral victory. It is the chief function of art, particularly of literature, in the poem, the story, and the drama to bring home these great moral truths. In this way the individual may readjust himself on a higher level through an emotional experience that attaches itself to an imagined rather than to a real situation. Both the esthetic emotion and the emotion aroused in a comic situation have high value in stimulating the dull mind and in brightening the wits. This is particularly true of the latter emotion. A test of general intelligence of considerable significance consists in presenting to the child an incongruous situation in order to discover if the mind can detect this incongruity.

In dealing with abnormal states of mind the same general principles that apply to the normal states hold good within limits. Those who are unduly given over to emotion should, of course, be held in check as far as possible. On the other hand, general apathy and inability to experience emotion under circumstances in which the normal individual gets such experiences are perhaps more undesirable than excessive manifestation of feeling. The fact that such individuals could experience normal emotions would indicate that they were again coming into a healthful relation with their environment.

THE WILL IN RELATION TO BEHAVIOR

Significance of the Term Will.—The term will is used with a large degree of inexactness and inaccuracy. It is often thought of as signifying some "faculty" or "power" which evaluates and controls our behavior. When we inquire more carefully into the actual conditions that attend a voluntary act, however, we find this popular conception of the will quite inadequate and entirely misleading. The will cannot be looked upon as an entity, but rather as a complex of intellectual and affective states accompanied by certain forms of behavior. Will is not a fundamental aspect of consciousness, such as sensation or feeling. It is composite in its nature. In the first place we find on the conscious side sensations of effort which are due to actual or incipient adjustments and which are to be interpreted not as an experience of "will power," but merely as sensations of a kinesthetic nature that arise in the course of attempted adjustments in reference to the object that is the end of the voluntary activity. In the second place, in a voluntary act we always find a greater or less degree of active attention.

There is an end which is held before the mind with a distinct sense of effort, as it enters into conflict with other ends that also strive to gain the centre of consciousness. Accompanying this aspect of attentive consciousness there appear the phenomena of deliberation and choice, as the attention turns from one aspect of the situation to another and action is for the time held in check. This is the period in which the person is "making up his mind," is deciding on the desirable course of action. This period of deliberation is generally attended by an affective tone of greater or less unpleasantness. In cases of extreme doubt the total experience may be very unpleasant. When finally the decision is made and definite action follows there is an opposite affective state that puts in its appearance. There is pleasure, or at least relief, when the struggle is over, never mind what the issue.

It must be remembered that there can be no voluntary act in the strictest sense of the word, unless conflicting purposes appear in consciousness. The person whose conduct is determined by one object that presents itself to the exclusion of all others, makes no decision, does not exercise active attention and his conduct proceeds from the impulsion of the moment. The fact that there must be more than one end present to the individual before his behavior becomes volitional makes active attention the essential aspect of will. As has been truly said, will in the last analysis is largely a matter of attention. Through attention we hold various possibilities of action before our minds, turn from one to another, and finally decide to follow one course of action to the exclusion of others by fixing our attention exclusively on the selected action. We succeed in willing by thinking of the act to be willed, and in so doing ignore other possible acts. If the attention is in the right direction the proper behavior is certain to follow.

From the above consideration it may be seen that the affective will consists in the proper balance of certain conscious states. In the first place there must be a normal amount of feeling in order properly to bring the possible ends of behavior before the attentive consciousness. In states of general apathy and indifference, such as appear in the psychoses of exhaustion and dementia præcox, a genuine abulia manifests itself. The patient suffers from psychic paralysis. He is unable to do anything. This may range from a mere "lack of ambition" to complete failure to react to external stimuli. In marked contrast to these states of extreme apathy are those which possess an exaggerated affective tone. The slightest and most trivial things loom large in consciousness and the action is immediate and out of all proportion to its cause. In mania the morbid euphoria leads to sudden and irrational acts. Closely related to these phenomena of the affective consciousness are others that concern the intellect. In states of marked insensitivity the attention is correspondingly weakened, while in states of excitement the attention is dispersed. There is constant fluctuation in the thought processes and no definite and sustained behavior.

Inability to will may be caused not only by lack of impulsion on the one hand and by excessive impulsion on the other, but also by a multi-

plicity of motives from which the individual finds it impossible to make a selection. He cannot hold his attention on one phase of the complex situation long enough to act in a definite manner. His behavior is characterized by overdeliberation and extreme caution. Sometimes undue fear of consequences seems to paralyze the will. These fears may be only slight exaggerations or they may become genuine phobias. Another cause for lack of ability to make a truly voluntary choice is found in those cases where the individual is dominated by some imperative or fixed idea that so controls conduct that all his acts are the result of this abnormal condition. In cases where the individual is extremely suggestible it is likewise true that no real decision is formed and no act of will takes place.

Impairment of the Will.—These various types of the impairment of the will, so clearly evident in pathological conditions, find their counterpart in the mental states of the normal individual. There are characteristic temperamental differences that work themselves out in varieties of volitional behavior. Some persons possess "explosive" wills. Their conduct takes place without due deliberation. They are moved to act on the impulse of the moment. On the other hand, there are individuals of the opposite temperament, those overdeliberative natures that seem never able to come to a conclusion, who see all sides of a question and cannot make a final choice. In these the judicial and the philosophical attitudes of mind have been overemphasized. While such persons are valuable in certain situations in life they are not the men of affairs as a rule. There are still others who will seldom make the choice necessary from sheer absence of initiative. They lack the "initial spin," so to speak. These individuals give the suggestion of incipient abulia. Among them are found a large number of life's failures. They are "infirm of purpose" not because they have many conflicting purposes before them, but rather because they lack any real purpose. Their affective life is on such a low plane that they can seldom be stirred up enough to act. They are the "ne'er-do-wells," the Rip Van Winkles, with whom every community is familiar. Then again there are those that seem afraid to act, to take a chance, either because of some positive fear, or because of a vague feeling that any action is dangerous. Finally, we find persons of no "wills of their own," individuals who will act under direction but who when left to their own resources are helpless. They are satisfactory members of those communities in which there is wise leadership. They will, however, as readily follow the leadership of the demagogue and the fanatic as of the man of sound judgment and clear determination. The "strong-willed" man, on the other hand, does not act impulsively, and yet is capable of decision when it is required. He can see various phases of the situation, but they do not so confuse him that he cannot hold the essential aspects firmly in his attention. He is cautious to the requisite degree, but is possessed by no undue fears. He takes the advice of others, but can act independently when it is necessary. He is not swayed by popular whims, and while in touch with the spirit of his

age and generation, he has broad enough vision not to be completely dominated by its prejudices.

Education and the Will.—It is the aim of education to secure this nice balance in the individual so that he may act effectively. To achieve this is, of course, difficult even in the case of the normal individual. When the feeble-minded and the psychotic are concerned the task is even more difficult, in many cases hopeless in a large measure. When the affective life is abnormal it is well-nigh impossible to secure any balance. The most effective training of the will lies in securing the right sort of attention. The person who lives in the moment can never really will. The development of the ability to hold relatively remote ends of action in consciousness is the very foundation of will training. This ability must be acquired as soon as possible in the child. He must be taught to see ahead; he must be made to turn from the allurements of the moment and consider the consequences of his acts. Deliberation is a quality of mind that has been slowly acquired by the race. It has grown up under the harsh tutelage of experience; the disastrous results of rash decision have induced caution; the fear of consequences has inhibited hasty action. What affects the behavior of the race has a significance for the individual. The normal individual takes a lesson from unpleasant consequences and acts with greater caution. In the education of the child, as has already been pointed out, the unpleasant consequences of undesirable and hasty acts may prove a wholesome corrective, whether in the form of punishment provided for the offence, or in the form of the unpleasant results that attend the act as its necessary accompaniment.

In educating the will of the individual it should be seen that as far as possible he is freed from irrational fears. There are many of these that resemble true phobias. Such are the fear of the dark and the supernatural, the belief in certain taboos and unlucky signs. Education can do much to rid the mind from these. Extreme suggestibility, which is characteristic of the undeveloped and of the feeble mind, should be eliminated so far as possible and the individual trained to act on his own initiative. As has already been said, independence of action, ability to direct one's self in the affairs of life, is a strong indication, if not absolute evidence, that the individual is normal. Thus it is that by securing the proper variety of attention, by inculcating due caution, by banishing useless fears, and by obtaining at least a modicum of initiative and independence, the individual's will can, to a degree, be educated. It should be remembered, however, that there is no will training in the popular sense of developing an all-around faculty of deliberation and choice. The ability to exercise voluntary choice is many sided. It can be developed in relation only to certain situations, namely, those that come under the ordinary experience of the person. No one can be trained to will in general, so to speak.

In conclusion, it may be pointed out that the character of the individual consists of two essential aspects; one of these is a set of reliable habits that work in the simple situations of life with automatic pre-

cision. The behavior of the person can always be counted on in these particulars in so far as he possesses a definite character. Habit, however, is but one aspect of character. The brute possesses habit to a marked degree when well trained; hence, can always be counted on. Its behavior is as regular as that of a machine. Yet the brute has no character, because it lacks the second essential aspect—namely, that of self-direction in those situations in which the old stock of actions is no longer of value. The new situation requires an adjustment that goes beyond the plane of habit. It can be met in a satisfactory way only when the individual has the ability to will in a genuine manner. This will is, of course, not capricious and without relation to the past. Still it is never slavish nor blind if there be real volition. It is a reasonable aim of any system of education to develop personality, and this may be defined as the combination of a stock of useful habits and of vital ideals that constitute the ends of rational volition. Those unfortunate beings who can be trained to form at least a modicum of correct habits, but who are incapable of genuine volition, can never arrive at the dignity of personality. They belong to a lower order and must be so treated. For them education, while possible, is confined within definite limits; for them there exist insurmountable barriers that never can be crossed.

CHAPTER III

SEXUAL PROBLEMS, THEIR NERVOUS AND MENTAL RELATIONS

By HAVELOCK ELLIS

Sexual psychology, normal and abnormal, as well as sexual hygiene, nowadays attracts a general interest and attention which twenty years ago was undreamed of. The young man of today is sometimes remarkably well informed concerning the literature of sex, and the young woman of today often approaches these subjects in an inquiring spirit which would have seemed to her grandmother absolutely impious. Until recent years any scientific occupation with sexual science was usually held to indicate, if not a vicious taste, at all events an unwholesome tendency. At the present time, it is among the upholders of personal and public morality that the workers in sexual psychology and the advocates of sexual hygiene find the warmest support.

Importance of the Subject.—It can scarcely be said that until lately the medical profession has taken an active part in the extension of this movement. The pioneers, indeed—at first, nearly a century ago, in Germany and Austria, and later, in other countries—have been physicians, but they were often looked at askance by their colleagues. Sexual psychology and sexual hygiene have formed no part of the physician's training. Indeed, scarcely more can be said of sexual physiology, and it was only recently that the first really scientific and comprehensive manual of sexual physiology (F. H. A. Marshall's) was issued from the press.

Just as the ordinary college manuals have ignored the anatomy and physiology of sex as completely as though this function formed no part whatever of animal life, so medical manuals have completely ignored the psychology of sex. It thus comes about that in the scientific knowledge of these matters, which for the comprehension of some cases is vitally important, the physician is often less well informed than his patient, and not seldom is the victim of false traditions and antiquated prejudices. Again and again where psychic sexual anomalies are concerned we find patients complaining that their physician has shown no comprehension of their special difficulties, either brushing aside the condition as of no consequence, or else treating them as vicious, wicked, perhaps disgusting persons. It is doubtless the patient's consciousness of this attitude in his doctor which leads many physicians, even of great experience, to declare that psychosexual anomalies are very rare and that they scarcely ever meet with them.

It may no doubt be maintained that in holding forth an ideal of robust normality and refusing even to hear of any deviation from that ideal the physician is stimulating and inspiring his patients to pursue the right course. But it must be pointed out that in this respect psychic health is not different from physical health. An exact and intelligent knowledge of the patient's abnormal condition is necessary in order to restore the normal condition. We cannot bring him to the position where we desire him to be unless we know where he at present is. Moreover, in psychic health, to an even greater extent than in physical health, the range of what may be considered normal variation is very wide. And, further, in order to ascertain what precisely is the norm for any given individual in this matter, we must know exactly what is his innate psychosexual constitution, for otherwise, we may be putting him on a path which, though normal for others, is really abnormal for him.

Its Difficulties.—It is on these grounds that much facile and conventional advice given to psychosexual patients is misplaced and even mischievous. This may hold good, for instance, of the advice so often given to sexually abnormal persons to marry. Certainly in some cases such advice may be excellent. But it cannot be safely given except with fulness of knowledge and with very precise reference to the conditions of the individual case. This warning holds good, indeed, of all advice in the psychosexual sphere. Sex penetrates the whole person; a man's sexual constitution is a part of his general constitution. There is considerable truth in the dictum: "A man is what his sex is." No useful advice can be given concerning the guidance and control of the sexual life unless this is borne in mind. A man may, indeed, be mistaken concerning his own sexual nature. He may be merely passing through a youthful and temporary abnormal stage, to reach eventually a more normal and permanent condition. Or he may, by some undue reaction, have mistaken a subordinate impulse of his nature for the predominant impulse, since we are all made up of various impulses, and the sexually normal man is often a man who holds in control some abnormal impulse. Yet in the main a man's sexual constitution is all-pervading, deep-rooted, permanent, in large measure congenital.

This consideration serves considerably to restrain the advice which the physician may reasonably give in psychosexual cases, and to limit the influence of any treatment he may apply. There is another reason why the sexual impulse is incomparably less amenable to therapeutic influence than the only other impulse to which we can compare it in magnitude, the nutritive impulse. Certainly the sexual impulse may, within limits, be guided and controlled at will to a much greater extent than some are willing to admit. But the sexual impulse is, to an incomparably greater degree than the nutritive impulse, held in certain paths and shut out of other paths, by ancient traditional influences of morality and convention. There are a few, a very few, physicians who hold that these influences should be ignored. The physician has nothing to do with morals or with conventions, they argue; he must

consider what is for his patient's good and advise him accordingly, without any regard to moral and conventional dictates. That, however, is a short-sighted course of action which leads to many awkward positions, to all kinds of inconsistencies, not seldom to a greater evil than the evil it is sought to cure. For it is the special characteristic of the sexual impulse, as distinct from the nutritive impulse, that its gratification involves another person. It leads directly into the social sphere, into the sphere of morals. No one is entitled to seek his own good, or can be advised to seek his good, in any line of action which involves evil to other persons. Nor, indeed, can the patient's own good, in any comprehensive and rational sense, be found in a line of action involving injury to those nearest to him, or even involving a violation of his own conscience and convictions. The wise physician cannot afford to neglect these considerations, even though he may be fully resolved that his advice shall not be based on mere conventions. They are real and vital considerations, interwoven with the traditional social edifice in which we all live, and in innumerable cases they render it impossible for the physician to follow purely biological lines in framing his psychosexual therapeutics. He must feel himself helpless because the condition before him is largely the result of factors over which he has no control, just as he must feel himself helpless with patients whose condition is mainly the result of the overwork and underfeeding which the conditions of their lives have rendered inevitable.

But it would be a serious mistake to conclude that, on this account, psychosexual cases must be viewed pessimistically, or regarded as belonging to a field which it is not worth while for the physician to concern himself with. On the contrary, psychosexual cases, precisely because they are in the psychic sphere, can be affected by indirect influences which have little effect on the more physical factors of disease, like overwork and underfeeding, which are likewise often beyond the physician's direct reach. It is at times astonishing to the physician to find in such cases, even when he has seemed to himself most helpless, how genuinely grateful the patient is for the benefit received. This is not always the result of suggestion, but rather of the opposite and equally natural process on which Freud has based his method of psycho-analysis—the cathartic process of yielding up and bringing to the surface suppressed elements of consciousness and so relieving the tension caused by the suppression. In the very process of self-confession, in which the physician, even by the intelligence and sympathy he brings to the task, is really taking an active part, an abnormal condition is removed, and while this may not suffice to render the sexual impulse normal, it certainly renders it less injurious, and at the same time restores the whole psychic life to some degree of harmonious equilibrium. The religious process, so completely developed in Catholicism, of confession and absolution, rests psychologically on this same basis, and tends, without doubt, to produce the same beneficial results. It is noteworthy that many persons, suspecting

that they will find little intelligent sympathy from their doctor, spontaneously take their sexual anomalies and errors to their clergymen, of whatever denomination, for the sake of the relief of self-confession to one whose function it is to restore and console. There is an important field of psychic therapeutics, apart from religious operation and even apart from hypnotic and other forms of suggestion, which legitimately belongs to the physician, and will be found peculiarly helpful in the psychosexual sphere. It is Freud's special merit—whatever we may think of the exaggerations of which his doctrines are susceptible—that he has recognized this special province of psychotherapeutics, and realized—in the simile he has adopted from the arts of painting and sculpture—that psychotherapeutics may operate not only *per via di porre*, by putting in, but also *per via di levare*, by taking out, by removing inhibition and suppression, and thus restoring the normal relationships of the psychic organism.

The Nature of the Sexual Impulse.—In order to understand the irregularities and anomalies which may occur in the evolution of the sexual impulse, it is necessary to obtain a comprehensive view of the biological process expressed in the psychic phenomena of sex. There is, indeed, no universally accepted theory of this process on its psychic side. The oldest and the most popular theory regards the sexual impulse as simply the expression of a need of evacuation, comparable to that experienced periodically in the bowels and the bladder. A very little reflection serves, however, to show that while there is a certain amount of truth in this analogy, it fails to explain the most distinctive feature of the sexual impulse. As I have elsewhere sought to show in detail,[1] we may probably best understand the sexual impulse—looking at it from a general biological point of view and not exclusively in civilized man—by regarding it as a process with two consecutive stages: the stage of *tumescence* and the stage of *detumescence*. It is a vasculonervous process, affecting the whole organism to some extent, by which the sexual apparatus, alike on the physical and psychic sides, is slowly charged with energy and, finally, discharged in the orgasm. In civilized man and in the domestic animals, living under conditions favorable to superfluous energy, the stage of tumescence is liable to be overlooked or misunderstood. Among savage races and in wild animals we may see that it is in reality the chief part of the process. The parades, displays, dances, mock combats, etc., which make courtship, alike among wild animals and savages, so serious a matter, are typical manifestations of tumescence and bear witness alike to the difficulty with which the male's ardor is brought to the climax and the corresponding difficulty in arousing the ardor of the

[1] Havelock Ellis, Studies in the Psychology of Sex, Vol. III, "The Analysis of the Sexual Impulse." It should be noted that the view here expressed is to some extent based on the earlier view of Moll (*Untersuchungen über die Libido sexualis*), who considered that the sexual impulse may be broken up into two related and concomitant, though distinct, elements: (1) *Contrectation*, the impulse to approach and caress an agreeable person of the opposite sex, and (2) *detumescence*, the impulse to evacuate the accumulated secretion of the sexual fluid.

female. The psychology of sex is mainly concerned with tumescence. When the elected couple are at length united and the moment of detumescence occurs the higher nervous centres may safely hand over the sexual task to the lower centres. It is during tumescence that the idealizing associations of normal love are built up, and it is during tumescence that the various anomalies and perversions of the sexual impulse are developed. This may occur even during childhood, for although detumescence is not the rule in childhood, there are undoubtedly from time to time vague and mostly unconscious movements of rising and falling tumescence. At a period of this kind, especially in congenitally predisposed subjects, the sexual impulse may be side-tracked by a seemingly chance association and linked on to objects or actions which normally lie on, or even outside, the frontier of love. The connection thus found sometimes persists in a subordinate, if not predominant, degree throughout the subject's life. It is thus that the sexual fetichisms and symbolisms are usually constituted. Indeed, nearly every perversion of the sexual impulse may be traced back to some anomaly in its early evolution, either an exaggeration or an arrest of development of some phase of the normal process of tumescence, occurring in early life, about or before puberty

The Sexual Impulse in Childhood.—The study of the sexual impulse in childhood has received considerable attention during recent years, and is now by many regarded as possessing an important significance not previously realized. It has long been known that all the emotions of love may be experienced, even acutely, by children who have not yet reached the age of puberty. It was not realized how commonly this occurs. Sanford Bell has shown, however, that all the emotions of normal love are very frequently experienced by boys and girls under the age of puberty. His observations cover a very large number of cases, but, being confined to the psychic side, they do not indicate to what degree such emotions are in childhood specifically sexual. It is probable, indeed, that while the psychic emotions of love are very common in childhood, any specifically physical manifestations in the generative sphere are relatively rare in normal subjects, though it would be rash to assert that the aptitude for specifically sexual sensations even in early childhood is incompatible with a sound nervous system and good health. As a rule, it would appear that in childhood even an acute sensibility to the emotions of love implies no consciousness of localized sexual sensations; the emotion is diffused and finds satisfaction in the presence and sight of the beloved object, or, at most, is a generalized contact.

Freud's View of Infantile Sexuality.—Freud, however, maintains that on the physical as well as on the psychic side, the sexual impulse plays a very important part in the lives of children, though a part which is in many respects widely unlike that of the sexual impulse in the adult. On this account infantile sexuality tends to disappear from the surface of consciousness, to be suppressed and transformed, while still remaining influential even in adult life, more especially in

neurotic persons who may, as it were, become the scene of a conflict between the adult sexual emotions and the imperfectly transformed infantile sexual emotions. Freud believes that most children of three or four years display sexual impulses. Such impulses are widely diffused in different erogenous zones, the lips and the excremental orifices of the anus and urethra being the chief of these zones. Hence, the attraction for infants of thumb-sucking which Freud finds to lead on to masturbation, and to be eagerly practised by subjects who afterward become hysterical. Hence, also, the scatologic interests of children who often think much of the functions of urination and defecation and derive from them a pleasure which is alleged to be largely sexual, while they devise various methods of cultivating that pleasure, one such method, indicated by Freud, being undue retention of the feces in the bowels. Freud also thinks that there is normally in all boys and girls a trace of homosexual feeling. He further believes that incestuous feelings are very common in early life as a manifestation of infantile sexuality, especially in boys for their mothers and in girls for their fathers. Some of these beliefs have been warmly contested, more especially the last. It may, however, be fairly pointed out as regards sexual emotions on the part of children for their parents, that it is well recognized, and beyond doubt, that the suckling mother frequently experiences sexual emotions in the act of suckling, while the emotions of the mother toward her child reveal a tenderness, passion, and absorption which are not far removed from the emotions of a woman toward her lover. There is, therefore, no good ground for offence if the corresponding emotions of the child should sometimes tend to take on a similarly sexual tinge.

It is generally held that while Freud's views of infantile sexuality bring into prominence facts which have often been overlooked, they unduly generalize and emphasize the sexuality of young children. Moll in his *Sexual Life of the Child*, the most able and judicious book yet written on this subject, is at various points unable to follow Freud's conclusions in regard to infantile sexuality unreservedly. We clearly have to recognize, however, that sexual phenomena are more prevalent and more complex even in early childhood than has commonly been supposed. In a considerable proportion of children sexual manifestations would appear to be practically non-existent, confined to traces not to be detected without very intimate knowledge. Yet, even in children who afterward became reasonably normal and healthy adults, sexual impulses, not usually focussed in the sexual organs themselves, are by no means rare. In this diffused form they may be algolagnic (masochistic and sadistic), fetichistic, incestuous; they are commonly homosexual, and very frequently, perhaps normally, scatologic. In all these forms they are usually innocent and spontaneous, and for the most part harmless. We are concerned with the first delicate growths of what will later become a mighty instinct, and we must not too hastily conclude that these early movements are perverse, any more than we are justified in protesting against the twisted shape of the young fronds

of ferns. It is probably undesirable that what we call normal sexuality should be developed early in life; the natural way of reaching it may well be by slow and seemingly devious paths.

The Sexual Hygiene of Childhood.—The proper attitude toward sexuality in the child is therefore one of watchful hygiene, which must always be unobtrusive. These childish erotic impulses are often unconscious, and nothing is gained by rendering them conscious or by concentrating attention on them. It is necessary to guard against the child doing any manifest injury to himself or others. It also seems desirable in some cases to warn the mother not only against too great an anxiety to punish a child exhibiting these manifestations, but also against any excess of physical tenderness which may unduly arouse the emotions of susceptible children. It is above all necessary to cultivate an understanding of child nature. Adults are prone to attribute their own feelings to children. Many acts of children which to adults appear to reveal vicious sexual motives, often have no sexual motive at all, but spring merely from the play-impulse or from the desire for knowledge. This fallacy has doubtless been favored in recent years by unguarded adherents of Freudian doctrines.

It is now more and more widely held by the best authorities in many countries that the sexual instruction of children should begin, so far as its elements are concerned, at a very early age, and that a wise and tender mother is the ideal person to perform this really maternal duty. It may, indeed, be added that only a mother can perform it rightly, and the training of mothers is an essential condition for the right training of children. It is sometimes said, on the other hand, that children's minds will thus be artificially concentrated on sexual subjects, of which otherwise they might remain blissfully unconscious. It is important, however, to remember the natural operations of a child's mind. A child's desire to know where babies come from is not a symptom of sexual consciousness, it is a natural desire to discover an important scientific fact. Again, at a little later age, the desire to know and see how the bodies of persons of the opposite sex are made is equally innocent and natural. It is the forced and unreasoned suppression of these natural curiosities, and not their gratification, which favors an unhealthy sexual consciousness. The child secretly concentrates himself on the solution of these mysteries because any open attempt to solve them is on every hand rebuffed. The points to be attained are that the child's simple and natural questions should be answered simply and naturally when they first begin to be asked, so that his thoughts may not be arrested, and emotion generated, by the creation of a mystery. It is by waiting too late that mischief is liable to be caused. As regards the naked body, similarly, much morbid curiosity may be aroused in the child who is growing up without ever seeing the naked bodies of children of the opposite sex, and the sudden casual sight of naked adults, for the first time, may sometimes produce a painful shock. It is desirable that children should be familiar with the sight of each other's naked bodies, and some parents also adopt

the plan of themselves bathing naked with their children when the latter are still very young. Various risks are thus avoided, while such simplicity and openness tend to delay the development of sexual consciousness, and to inhibit the development of undesirable curiosities. It may even happen that the little boy who is brought up familiarly with his naked little sister never even so much as discovers that there is any sexual difference of physical conformation. All the influences that delay precocious sexual consciousness are of good augury for future development; the wise sexual hygienist realizes that this end cannot be attained by the artificial creation of mysteries.

Masturbation.—Masturbation is undoubtedly the commonest sexual manifestation in childhood to attract attention and arouse anxiety in the parents' minds. There is no age at which masturbation may not occur, even in infants in arms. But its occurrence at an early age, especially at an age below puberty, should always arouse a certain degree of suspicion as to the complete nervous soundness of the child and the stock he belongs to. If we put aside the influence of physical irritations (such as uncleanliness, worms, tight clothing) there is some reason to believe that a normal child cannot easily be trained to masturbation by companions who have this habit. In all well-marked cases of masturbation at an early age, where no definite cause for the practice can be detected, we probably have to deal with a subject of defective nervous development or bad heredity, and this must be kept in mind in conducting the treatment. A normal child brought up with a reasonable attention to hygiene, mental as well as physical, would probably seldom masturbate, and some children cannot succeed in doing it even when they innocently attempt to imitate a vicious companion; but the case is altered if the child is nervously predisposed; the habit, once formed, may then be very difficult to eradicate. All the stress must, therefore, be laid on preventive hygiene. This can be most effectively conducted through the medium of a sensible and intelligent mother, who can win the confidence and trust of a child at an early age, exert a moral influence over him and maintain, if necessary, an attitude of quiet watchfulness. The devices invented in earlier ages for the mechanical prevention of masturbation are rarely successful, even when they are not an actual aid to the practice, for there is no end to the methods of gratification which may be adopted so long as the will exists to gratify the desire. Hypnotic suggestion has, when at a later age it is practicable, sometimes been found helpful, and suggestions made to the child when asleep by the mother have been said to be effectual. In some cases it has been found satisfactory to inculcate the habit of keeping the hands out of bed, maintaining, if necessary, a watch to insure that they do not slip in again. It is desirable, even when there is no known tendency to masturbation, that the child should be sleepy on going to bed and should not be kept in bed in the morning when he is fully awake; if he wakes at an inconveniently early hour he should have some objects to investigate and play with, such, for instance, as the smooth carved Eastern images with no dangerous

angularities, for it will be found that such an object proves an endless source of interest. It is now generally recognized that beds should not be too soft, nor bedclothes too heavy, and that it is undesirable to give alcohol to children. It may be added that there should be no excess of any fluid taken at bed time, as pressure of the bladder tends to cause sexual excitement, and for a similar reason the bowels should be kept open. It is, perhaps, more important to refer to indirect sexual stimuli which are not commonly recognized, more especially any strong nervous influence. The child's whole organism is sensitive to a degree the adult often fails to realize; just as one has sometimes seen an infant almost parboiled in water which to the old woman responsible for the bath seems to be only agreeably hot, so the child's nervous system may be dangerously shaken by proceedings which to the adult seem wholesomely tonic. It must be remembered that all strong emotions, however non-sexual, tend to overflow into sexual channels. This is notably the case as regards terror and anxiety; the reckless application to children of such emotions has frequently caused direct physical (not necessarily psychic) sexual excitement, and there seems reason to believe they impart an undue facility and weakness to the sexual functions. Stability, solidity, and, so far as possible, quiescence, are primary conditions for the development of the child's nervous system, and not the least reason for the avoidance of shocks at this early age is the need of preserving the neurophysical sexual apparatus intact.

It must, at the same time, be pointed out that, even as regards masturbation at an early age, the prognosis is not so serious as was once generally believed and is still sometimes supposed. When begun after puberty there is not the slightest doubt that masturbation, even when practised almost daily for many years, may be associated in sound subjects with physical and muscular vigor, and with intellectual power even above the average; I have met with men who are notable illustrations of this truth, and it is also exemplified by women. But even when masturbation is begun in early childhood the ultimate results, provided the child is not hopelessly unsound, seem generally to be satisfactory. Thus, Moll states that he has known boys and girls who in childhood were obstinate masturbators, but when seen in early adult life were radiant and healthy, whether or not they still continued the practice; while, on the other hand, he has known all the serious symptoms once supposed diagnostic of masturbation to occur in persons who, there was reason to believe, had never acquired that habit.

It must not be hastily concluded that masturbation, and especially masturbation begun at an early age, is without evil results. Even when producing no gross evil results, such as impotence, it may still be productive of minor physical evils and of subtle loss of refinement on the psychic side. Moreover, the risk is run, through an early acquired habit of masturbation by an individual with normal moral feelings, of an unnatural divorce between the higher and the lower feelings; the physical feelings associated with masturbation are regarded

as low, while the higher sexual feelings tend to a sterile ideality! The most serious results of masturbation, as we now realize, are not usually due to the act itself but to the psychic reaction it excites: apprehension of the results, shame, remorse. Under such conditions any act is injurious.

We have, however, to recognize that in some cases, though not in early life, the results of moderate masturbation seem to be, on the whole, more beneficial than injurious. Many adults, women perhaps more often than men (who more easily find other modes of relief), practise occasional masturbation, without any perversion of the sexual impulse leading them to prefer it to normal sexual relationships, and sometimes without any ideal content at all, simply as a sexual sedative. They have no enthusiasm for the practice, even if the act occasions no actual remorse, and, as a rule, they endeavor to forget it at once; but they find that it is better than the constant struggle and exhaustion of an ineffectual battle with the sexual impulse.[1] This aspect of the matter has to be remembered when the question of the treatment of masturbation arises in persons who are no longer children. It is by such people often regarded as a question of economizing vital energy under circumstances in which no solution of sexual difficulties is practically possible, and what seems the lesser of the two evils is chosen by a person who regards such choice as coming within his or her legitimate sphere. A girl of nineteen answered parental remonstrances in regard to masturbation by declaring that she had a right to do as she chose with her own body. The danger obviously is that so easy a solution may be adopted with undue facility. Treatment, in the narrow sense, is not always called for in such a case, but the physician is entitled to set forth, undogmatically, those wider and higher aspects of the matter which these persons are apt to overlook.

Other Auto-erotic Phenomena.—The physician must always remember that masturbation, after the age of sexual development is attained, cannot be regarded as an isolated phenomenon. It is one of a great group of auto-erotic phenomena which are the spontaneous manifestations of the generative impulse working powerfully from within: it may well be under the stimulus of internal secretions, even in the absence of any definite external stimulus. These phenomena include not only the impulse to masturbate, but the tendency to erotic day-dreaming, and in sleep the involuntary process of nocturnal emissions with or without erotic dreams. In a yet wider sense we may see the transformation of auto-erotic impulses in adolescent activities of art

[1] Thus a woman physician, who ably occupies an important official position, began to masturbate, without definitely realizing what she was doing, in the late adolescent period; some years afterward, on moral grounds, she completely abandoned the practice. Again, some years later, she resumed the practice in so far as it seemed to be necessary to set aside the insistent claims of the sexual impulse and to avoid prolonged struggles which would interfere with the concentration of thought on work. She feels assured that this course of action has in her case been for the best. Many charming, clever, and busy women act in accordance with a similar belief. It is not easy to blame them so long as crude and vulgar notions of the relations between the sexes still largely dominate society.

and moral inspiration, in outbursts of religious emotion, and yet again, more abnormally when the subject is neurotically predisposed, in various forms of nervous disorder, such as hysteria and the varieties of neurasthenia. When the auto-erotic stream is escaping through one of these channels we may attempt to dam up that channel, but even so far as we succeed we do not touch the source of the stream, we merely cause it to exert its pressure at some other point, which point we cannot usually determine, perhaps a point at which the activity of the impulse may be more mischievous than it was at the spot where we undertook to treat it. In dealing with the manifestations of the sexual impulse, alike in its auto-erotic as in its more completely developed forms, we again and again have the fact brought home to us that we are not concerned with the suppression of an abnormal diseased process but with the Protean manifestations of a great natural force.

Sexual Abstinence.—The subject of masturbation and the method of dealing with it brings us up to the difficult question of sexual abstinence, and the troubles, real or alleged, that may be associated with it. This is nowadays a more delicate and complicated question than it was in former days when the physician was allowed to display a certain inconsistency, and not called upon to advise in accordance with general principles applicable to both sexes alike, and equally to the married and the unmarried. The modern physician is not only approached by both men and women who wish to know how they are to deal with the difficulties caused by a life of sexual abstinence; he is also asked to proclaim general principles in this matter for the world at large. This demand upon the medical profession has led to the formulation of various vague propositions concerning the harmlessness of continence, which mean nothing and may be used in senses not intended by the formulators; they are, for instance, quoted with much satisfaction by those persons who advocate no sexual intercourse except for the production of children, that is to say, perhaps three or four times in a lifetime. No doubt continence in the use of the muscular and glandular system generally is not injurious to health; continence, likewise, in the use of the specifically sexual muscles and glands, is equally not injurious to health. But such frivolous exercises in verbal juggling are beneath the dignity of the medical profession, and may well be left to the charlatans who take advantage of the sexual ignorance and prejudices of the multitude. The physician is called to deal with the manifold cases of living men and women, not with abstract formulas.

The difficulties and dangers of sexual abstinence have in the past been both underestimated and overestimated. On the one hand, it has been emphatically stated, always by those who are overweighted by the moral interests which they conceive to be at stake, that such difficulties and dangers are negligible. On the other hand are those who, partly by reaction against this extreme view, and partly by ancient tradition, have gone to the other extreme, and declared that

various forms of insanity, as well as of nervous disorder, are due to sexual abstinence. There seems no ground to believe that any serious psychosis or neurosis is caused by sexual abstinence alone in congenitally sound persons. The belief that it may be so caused is due to the familiar confusion between the *post hoc* and the *propter hoc*. Insanity may occur in an individual in whom the sexual instinct is organically hypertrophied and may even in rare cases be in part due to that hypertrophied instinct, which yet must be regarded as itself a syndrome of degeneracy, by no means as the essential causative factor in the case.

But it must not be denied that the difficulties of sexual abstinence, even though they do not involve any great risk to life or to sanity, are still very real to many healthy and active persons.[1] It is apt to cause minor disturbances of physical well-being and on the psychic side much mental worry and a constantly recurring struggle with erotic obsessions, an unwholesome sexual hyperesthesia, which in women often takes the form of prudery. A student, for instance, who lives chastely, who is ambitious, who wishes to put all his best energies into his studies, may endure great anxiety and mental depression from this struggle. Many young women, also, actively engaged in various kinds of work, suffer similarly, and are sometimes thereby stimulated to a feverish activity in work and physical exercise which usually brings no relief. One is sometimes, indeed, inclined to think that women suffer more from this cause than men, not because their sexual impulses are stronger, but because men are more easily able to form sexual relationships outside marriage, while the spontaneous orgasms which in chaste men normally give relief at intervals of from two or three times a week to about once a month are in women who have had no sexual experiences comparatively rare, even when sexual desire is very strong. It is often the superior women who suffer most from this cause, and they are precisely the women who are most anxious to conceal the fact.[2]

Those who belittle the difficulties of sexual abstinence may do well to consider the experiences of the early Christian ascetics in the desert, as described, for instance, in the *Paradise* of Palladius. These men

[1] This is now held by all competent authorities. Thus Näcke, a cautious and critical writer, states that the opinion that sexual abstinence has no bad effects is not today held by a single authority on questions of sex ("Zur Frage der Sexuellen Abstinenz," Deutscher medizinische Wochenschrift, 1911, No. 43). The fight is concerned with the quantity and quality of the bad effects. Näcke believes that they are never of a gravely serious character.

[2] I hear from many women who suffer acutely in this way, but they frequently write from a distance or conceal their real names. One lady from whom I heard several times (and who happened, without knowing it, to be well known to a friend of my own) is fairly typical: Middle-aged, very robust, well-developed and handsome, highly intelligent, has independent means and often lives abroad; has never had any sexual relationships. Though enjoying good health on the whole, some slight disturbances (notably a mental shock at sixteen which diminished menstruation) have stimulated sexual activity to an abnormal degree. There is constant sexual desire and all the physical and mental methods of dealing with it which she can adopt are fruitless to relax this perpetual tension. Her character and traditions render any irregular gratification impossible and prevent her even referring to her condition, while the occasional masturbation which she has been compelled to resort to at the monthly periods brings no relief but only remorse.

were vigorous and resolute, they were whole-heartedly devoted to the ideals of asceticism, they were living under the best possible circumstances for cultivating such ideals, and their régime was austere to a degree that is for us impossible and almost inconceivable. Yet there was nothing that troubled them so much as sexual temptation, and this trouble to some degree persisted throughout life.

It may be added that another fact should warn us against any facile acceptance of mere platitudes in dealing with this question. I refer to the fact that, putting aside altogether the experiences of ancient ascetics and coming down to the present day, all careful investigation shows that the proportion of persons, even among physicians,[1] who really live continuously in true sexual abstinence, that is without any manifestation of sexual activity, is very small. It is only considerable when we leave out of account the imperfect forms of normal sexual gratification involved in flirting, etc., the abnormal forms of the impulse, and its various auto-erotic manifestations. / Rohleder, a leading authority in this field, believes that when we thus widely look at the matter, there is no such thing as sexual abstinence, the genuine cases in which sexual phenomena fail to appear being simply cases of sexual anesthesia. The seeming variations which we find would thus mainly be due to national differences in tradition which in some countries favor, in effect, resort to prostitutes, and in others resort to masturbation. √There are, indeed, notably in France, two schools of physicians in this matter, one of which sternly reprobates any indulgence in the unmanly habit of masturbation, but is comparatively lenient to prostitution; while the other severely condemns any resort to the dangerous and immoral practice of prostitution, but is comparatively lenient to masturbation. Such considerations as these may profitably be borne in mind when we attempt to treat, or to palliate, the manifestations of unsatisfied sexual activity. The most common of these manifestations are local congestion, insomnia, irritability, depression, headache, vague hysterical and neurasthenic symptoms. When the resulting troubles definitely approach the borderland of the psychoses it is usually found that other coöperative causes must be taken into account.

Here, as so often in the sexual field, treatment usually resolves itself largely into hygiene, which, to be effective, must begin earlier than the conditions it is meant to combat. A simple life, plain food, cold bathing, the absence of luxury, with the avoidance of all strong physical or mental excitations, no evil companionship, abundant occupation and ample exercise in the open air—the child who, being well born, is thus bred from his earliest years has a fair chance, in the absence of unavoidable accidents, of prolonging sexual unconsciousness, even though sexual instruction may have been imparted for a long time. But when once the organic sexual impulses have become irresistibly present to consciousness, all these excellent rules of regimen are no

[1] Meirowsky, of Cologne, by inquiries among eighty-six physicians found that only one had never had sexual intercourse before marriage.

longer so effectual as they are sometimes represented to be. They are good to follow, in any case, and they are not sometimes without effect in subduing the activity of the sexual impulse, but we must not expect from them what they cannot give. Healthy, moderate, physical exercise, so far from repressing sexual desire, much more often, both in men and women, acts as a stimulant to evoke it, and only has a subduing influence when carried to an unhealthy and immoderate excess producing exhaustion. Mental work, likewise, sometimes even when of a purely abstract nature, is liable to cause sexual excitement. It is, indeed, obvious that the rules of general hygiene, being conducive to vigor, cannot fail to impart vigor in the sexual sphere; we cannot take measures to generate vigor in the system, and then impede its overflow into sexual channels. We may, it is true, transmute sexual energy into other more spiritual forms; but only a small proportion of sexual energy can thus be sublimated; as Freud well says, it is with sexual energy in the human organism as it is with heat in our machines, only a certain proportion can be transformed into work. It is true we may resort to drugs, of which the bromides are the most generally employed, and probably the most effective. Such resort is perhaps especially beneficial in nervous and overexcitable persons whose sexual erethism is not the outcome of sexual vigor. In robust and temperamentally sexual persons the bromides are often useless unless pushed to an extent productive of a general deadening of the finer activities. This is not a satisfactory method of dealing with a great natural impulse capable of fine uses. We have to recognize the limitations of our powers in this field, refrain from platitudes in the face of difficulties which the constitution of society renders inevitable, and oftentimes leave to the patient himself the grave responsibility of solving those difficulties.

There are, indeed, some physicians who boldly declare that in this matter we must ourselves assume an unlimited responsibility. A patient comes—say a Catholic priest or a married woman with an impotent husband—clearly suffering from nervous troubles as a result of sexual abstinence. It is our duty, they say, to these patients, firmly to recommend sexual intercourse. I do not think so. Apart from the fact that the physician obviously cannot guarantee the purity of the drug he is prescribing, apart also from the immorality of recommending in private a course of action entirely opposed to that which, in all probability, he implicitly or explicitly recommends in public, the physician who gives advice outside his own strictly medical sphere is bound to consider the wider effects of that advice on the patient himself. If—as in the instances mentioned—such advice leads a man into conduct antagonistic to his professional character, or leads a woman to place herself in a painful social position, the results, even to health, may be worse than those involved by the struggle to repress sexual desire; one struggle has merely given place to another and perhaps more serious struggle. The physician would do well, when he goes beyond the purely medical sphere in this matter, to confine himself to a clear,

wide, and impartial presentment of the issues that are before the patient, leaving to the patient himself the responsibility, which must rightly belong to him, of selecting the solution. The physician's part here is that of a judge charging the jury; he must clear up the issues but not pronounce the verdict. In so doing he may at the same time bring his patient to a calmer and more rational attitude, and will perhaps prevent a rash attempt to cut the knot which it seems impossible to untie.

The Advisability of Marriage.—The conventional remedy—certainly also the best when it can be fulfilled under good conditions—for sexual abstinence is marriage. The physician is nowadays consulted much more frequently than used to be the case concerning the desirability of a marriage when there appears some ground for anxiety as to the results of the union on the couple or their offspring. Moreover, the opinion of the physician on such matters is now taken more seriously than it formerly was. It is necessary, therefore, in such cases to avoid platitudes, which under the circumstances may be inconsiderate, and to give, so far as possible, a deliberate and circumspect opinion. The scientific material on which such opinion can properly be based is for a large number of cases still very imperfect and only now beginning to be coördinated, so that this whole subject belongs largely to a future, perhaps not remote, when it may be possible to forecast the probable results of sexual unions with much more precision than can now be done. Moreover, the subject is, for the most part, outside the scope of the present chapter. There are, however, a few points in regard to which some indications may here be given.

A simple case which not infrequently occurs is that of the youth or girl who suddenly overwhelms relations and friends by announcing an intention to enter on a marriage which is flagrantly unsuitable, although it may not obviously clash with any eugenic principle. The physician is appealed to in order to ward off the dreaded marriage and is sometimes expected to declare that the imprudent lover is not mentally sound. That is a matter for investigation, but it may be said that in most cases of this kind, while there may be a slightly neurotic heredity, the aberration, if it is an aberration, so little overpasses physiological limits that it cannot safely be combated on these grounds. The Romeo and Juliet lovers who disregard the social barriers which oppose their union are overcome by a temporary exaltation, but they are not insane, except in the sense in which Burton in his *Anatomy of Melancholy* copiously argued that all lovers are insane. In most cases of this kind we are concerned with young people who have not yet emerged from the storm and stress period of adolescence, and in whom the sudden eruption of the new erotic life produces an almost physiological disturbance of mental balance which will speedily right itself and never occur again. A typical case which sometimes occurs is that of a chaste and upright youth who, having accidentally been brought into close contact with a prostitute, forms the design of marrying her, in such a case the obscure promptings of the sexual impulse being more

or less disguised by the idea of redeeming a woman who seems never to have had a fair chance. Now it not infrequently happens that marriage with a prostitute turns out well when it is the result of deliberate choice by a mature and experienced man who clearly realizes what he is doing. But that is not likely to happen in the case of an ignorant youth blinded by the exaltation of his feelings. In these cases the best method of preventing the union is to temporize. Severe opposition will merely serve to increase the exaltation and to lead to rash steps which will precipitate the dreaded marriage. By contriving to obtain delay, and in the meanwhile securing for the youth ample opportunity to see and study his beloved, he may be brought to view her in something the same light as his friends. In the case of a girl who contemplates a rash marriage, it may often be possible to remove her entirely into a different environment in which new interests and relationships will gradually be formed. The unions which are the speedy result of a sudden infatuation so often produce a chain of disastrous results that it is always legitimate in such cases to introduce obstacles tending to cause delay, even though it is true that absence is "the mother of ideal beauty," and that many a lover thus frustrated cherishes the belief that he or she thus missed happiness in life. The experience of Dickens who when rejected by the girl he admired in youth regarded her as the supreme embodiment of perfect womanhood, and moulded his heroines in her image, only to be repelled and disgusted when he at last met her again, is an experience which has often been repeated in the lives of less distinguished persons.

Marriage and Procreation.—There is one point which must nowadays always be held in mind when we are considering marriage from the eugenic standpoint in relation to the probable quality of the offspring. Formerly marriage and procreation were one and indivisible. To recommend marriage meant to permit procreation; to advise against procreation meant to prohibit marriage. It cannot be said that this is any longer the case among the educated classes in any civilized country. The use of the so-called Neo-Malthusian methods of preventive intercourse—whether or not it may receive formal public approval—has become so general that the discussion of their desirability no longer subserves any useful purpose. We have nowadays to distinguish between the desirability of marriage and the desirability of procreation, the latter question involving not only regard to the probable interests of the couple themselves, especially the wife, but also to the probable interests of the offspring. It is an undoubted advantage to be thus able to deal separately with the issues involved. Nor can it even be said that any revolutionary change has hereby taken place. It has long been customary in certain serious eventualities to enjoin abstinence from procreation for the future. It is only one further step to utter this injunction at the outset of marriage. It is well known that neuropathic persons tend to be attracted to each other. This is part of a general tendency of people to be attracted to their like, now known to prevail over the attraction to opposites

which was once imagined to be the rule; homogamy, that is to say, is more prevalent than heterogamy. The craving for opposite qualities is confined to the sphere of the secondary sexual characters, a very masculine man being attracted to a very feminine woman, and *vice versa*, but it fails to extend beyond that sphere. This fact has a bearing on the advice we may be called upon to give to neuropathic persons who contemplate marriage. They tend to be especially attracted to each other. Sensitive, intelligent, refined, as such a person often is, the neuropath finds an answering sympathy in a fellow neuropath, while the healthy normal person may seem irritatingly dull and insipid. In the same way the normal person finds the morbid and capricious temperament of the neuropath uncomfortable and unattractive. It is, therefore, somewhat futile to repeat the common advice furnished by the text-books that the neuropath should marry, if at all, a robustly normal person, with sound heredity. The advice is theoretically correct, in so far as the chances of sound offspring would thus be improved. But it is unpractical because it overlooks the fact that the affinity between the normal and the morbid is not strong and that the chances of such a union proving satisfactory are not large. These chances are not considerable even in the case of two very pronounced neuropathic people who marry each other, and such people should certainly be urged not to marry at all, alike for the sake of themselves and of their partners, however difficult the problem of sexual gratification may be to them in the unmarried state, the reasons against marriage in the case of such persons becomes all the more emphatic if there is a highly developed sexual perversion which the partner cannot possibly gratify. But for the milder neuropathic cases these objections have less force, while the attraction is often so strong that opposing advice has but a small chance of being accepted. In such cases the necessity of distinguishing between procreation and marriage becomes very stringent.

The prevention of conception involves much care and precaution, and of recent years an alternative and more reliable method of attaining that end has received an increased degree of favor: the method of sterilization. This can now be effected, simply and harmlessly, without removal of the sexual glands, by vasectomy in men and ligature and section of the Fallopian tubes in women. As a method of treating any psychic condition its value is very dubious, and if performed compulsorily it can hardly fail to be pernicious in mental effects; but, adopted voluntarily, as a method of preventing conception, its advantages seem to be great, while it abolishes the need for those preventive precautions which most people, quite legitimately, regard with disfavor.[1]

[1] In one case known to me, an American physician, in good health and with a family of several children which he had no wish to increase, submitted to vasectomy in order to avoid the routine of preventive precautions which was repugnant to himself and his wife. The pain and discomfort of the operation were not sufficient to interfere with his ordinary office work, and the result proved entirely satisfactory to both partners. It remains so today, several years later. There has been no loss of potency or desire.

Impotentia Cœundi.—One of the great nervous terrors surrounding marriage in some men's minds—a terror which may also occur apart altogether from marriage as well as in later stages of that state—is connected with the doubt as to potency. A comparative absence of sexual power and sexual impulse, from one cause or another, is more common in men than is sometimes recognized. The number of marriages, indeed, is by no means small in which from this cause conjugal relations are not effected, and such unions are by no means always below the average in happiness. But the suspicion that he is impotent—although such sexual quiescence is a goal which others are vainly longing to attain—causes the average man extreme anxiety, so that he is prepared to adopt any course of treatment and often to resort to any of the quacks who are prepared to trade on his terrors. A temporary loss of potency under a high emotional strain may easily occur and is not of any serious import. Nervous and inexperienced men are specially liable to it. Montaigne long ago pointed out in his essay on the force of imagination that it is merely due to fear, and he sagaciously described how, by ingenious methods of neutralizing the fear, potency is perfectly restored.

In some cases, however, the defect of potency rests on an acquired habit of the nervous system, that is to say, we are confronted not by psychic impotence but by neurasthenic impotence. Chastity, masturbation, sexual excess—such are the causes commonly arraigned for such a defect in potency. Moreover, the conditions of civilization are very favorable to a general nervous excitability and overhasty reaction to stimuli which, on the sexual side, tend to produce an abbreviation of tumescence and a premature detumescence unfavorable to the satisfactory accomplishment of the sexual act. I agree with Löwenfeld[1] that at the present day the frequency of premature ejaculation in men is very great. I do not feel confident that Löwenfeld is right in attributing this in 75 per cent. of cases to masturbation. In a certain proportion of cases, no doubt, masturbation plays an important part, but even an extreme degree of masturbation has sometimes no serious effects on potency, while in any case masturbation is so frequent that considerable caution must be exercised in asserting that it is the cause of anything. In most cases, probably, we must regard neurasthenic impotence as in part a special manifestation of the general tendency to quick and sensitive reactions which marks all urban life under modern conditions (manifested in women in the tendency for pregnancy to come to a termination before full term), and in part, as the result of ungratified desire during the period of adolescence, and beyond, leading to prolonged tumescence not followed by its natural relief, even in masturbation, and a consequent impairment of the vascular mechanism of detumescence.

In most cases there is only a relative defect of potency. Erection, more or less complete, occurs and is followed, though too rapidly,

[1] Ueber die Sexuelle Konstitution, p. 131; Fürbringer and Freud are of the same opinion.

by ejaculation. The subject may not be conscious that anything is wrong. But we cannot doubt that this defect of masculine potency counts for much in the prevalence of sexual frigidity among women.

When the loss of power is more absolute—whether due to temporary psychic impotence or to real enfeebling conditions—the subject is often alarmed, even very much alarmed. Under the influence of his nervous terror we often find a man constantly brooding over his own sexual powers, constantly trying to arouse them, constantly, perhaps, if he is unmarried, making appointments with prostitutes, to meet with frequent disappointment.[1]

We thus have two classes of cases, those of psychic impotence and those of neurasthenic impotence. In the former, the mechanism of detumescence is intact but its action is inhibited by psychic tension; the treatment, therefore, simply consists in removing the psychic inhibition by allaying the subject's doubts and suspicions. In the cases of neurasthenic impotence the mechanism of detumescence is not inhibited but, on the contrary, more or less enfeebled, and the treatment is less promising, though it is usually quite possible, if not to restore the impaired mechanism, at all events to minimize the results of the impairment. In all these cases the main point is to allay the patient's terror, turn his thoughts out of sexual channels, and insure the practice of a sound hygiene. Drugs are of secondary value; the much advertised drugs, yohimbin and muiracithin, have been found useful in some cases, but it remains doubtful whether they have any considerable real somatic influence on the condition; nux vomica, notwithstanding its strong exciting effect on the sexual system, and the spinal cord generally, is worse than useless when overexcitability already exists. The patient should be forbidden to attempt coitus and should especially be discouraged from making such attempts with prostitutes. Prolonged suspense and expectation is the worst prelude to coitus, especially in these cases, and all acute mental activity and emotional worry are unfavorable. A sensible and tactful wife is the physician's best assistant. The famous case of Rousseau is in this matter instructive. He was a man of extremely sensitive and erethic temperament, psychic and physical; his emotions responded to a touch, and his sexual impulse reflected this high nervous irritability. With a prostitute, or with a woman for whom he felt ardent passion, he was an ineffective lover. But with Thérèse, with whom he lived in calm and constant companionship, he was quite potent, and, if his own honest belief is correct, he was the father of numerous children. In these erethic cases everything that allays genital excitability is favorable; thus it is that after prolonged sexual abstinence the first ejaculation may be premature, but the second attain the normal result; the

[1] It is scarcely necessary to say that in the case of a chaste and refined man impotence with a prostitute proves nothing. Moll mentions the case of a man who, never having had sexual intercourse, visited a prostitute before marriage, on the advice of a friend, to ascertain if he was potent. He was quite impotent. But he married and was quite potent with his wife.

interval, of course, varies with the individual sexual constitution, and while it may be less than half an hour in one person, it may be several days in another. It may also be recommended not to attempt intercourse on retiring to bed, but only after a period of rest and sleep, or in the early morning, a time which some authorities advise as generally the best. With mental peace and rational hygiene fairly satisfactory results may be reached in these cases.

Sexual Frigidity in Women.—We encounter the fact, however, that a completely satisfactory act of coitus includes much more than mere potency. Sexual intercourse involves two persons, and its fulfilment, therefore, involves the satisfaction of two persons. At this point we are brought up to the problem of sexual frigidity in women.

Sexual frigidity, termed, when absolute, sexual anesthesia, or sexual anhedonia, is commonly regarded as very frequent in women, as such producing much domestic infelicity, suffering to the wife, and disappointment to the husband, who is tempted to seek more congenial relationships elsewhere. In such cases there is either defective desire for sexual union or defective pleasure in union, and commonly both.

In the biological game of sex the female normally plays the more passive part, and in civilized woman this relative passivity is further reinforced by our conventions. The sexual centres are more numerous and more diffused in women, so that the impulse is more easily dispersed and gratified in remote and unconscious channels, while our traditions teach women to repress as disgusting and sinful the manifestations of sexual impulse. It thus happens that in women more than in men the sexual impulse is driven below the surface to seek an outlet in remote and often unconscious paths. It is this great fact on which Freud and his school have seized. But notwithstanding the special characteristics of the sexual impulse in women there is no good reason to suspect frigidity or anesthesia among women living under fairly natural conditions. Even among the poor in civilization (putting aside a certain proportion of domestic servants who live, like domestic animals, under artificial conditions) there are, as it is said, no "old maids," and this suggests, without actually proving, that there is no defect of sexual impulse. But the civilized woman, under the combined influences of nature, art, convention, morality, and religion, tends to come into her husband's hands usually at a rather late adult age, in a condition inapt for the conjugal embrace, which, if the bridegroom is lacking in skill or consideration, may cause her suffering or disgust, or merely leave her indifferent.

Sexual frigidity in the wife may best be treated in the husband. Certainly there are various conditions in the woman herself which may need direct attention. Masturbation and homosexual practices have frequently rendered normal intercourse difficult or repulsive. The sexual organs themselves may be in a disordered condition, perhaps increased by neglect. Sometimes there is a tendency to vaginismus. The attempt has been successfully made to treat such cases by hypnotic suggestions, the suggestions given to the patient being that the natural

sexual feelings would quickly and satisfactorily develop during coitus, that she would experience no disgust or involuntary resistance, and that the orgasm would quickly develop.

But the main part of the task of curing sexual anesthesia in a woman must rest with her husband. The husband is by no means always equipped for this treatment. One fears that there is still only too much truth in Balzac's saying, that in this matter the husband is sometimes like an orang-outang with a violin. The violin remains "anesthetic," but it is probably not the violin's fault. This is by no means to say that husbands are consciously or intentionally brutal. Certainly much brutality may be exercised by a husband in sheer ignorance, from a sense of conjugal duty. But often the inexpertness is combined with a real desire to be considerate. The sad thing is, indeed, that the awkward husband is, in a great proportion of cases, awkward simply because he is virtuous and high-minded, has tried to live a life of chastity before marriage and has never learned to know the nature and needs of women. It is quite true that the very happiest marriages, marriages of life-long devotion on each side, have sometimes been made by two young people who have never known anyone but each other. But this innocence is a two-edged sword, and in many cases it is the other way that it cuts. Then the man who has faithfully lived by the rules of the morality he was brought up in finds that he has merely wrecked his own domestic happiness and his wife's. It must be added that the man whose premarital experiences have been confined to prostitutes is often by no means any better equipped, and his exaggerated consideration for the purity of his wife, or his ignorant assumption that she has no purity at all, may prove equally unfortunate.

It must be admitted that the husband's task is often difficult. The difficulty is greatly increased by the late age at which in civilization a woman enters the state of marriage, after a long period of years in which she has presumably been leading a life of chastity. During those long years there has been, we know, a constant generation of sexual energy which must be consumed along some channel or another. The woman has acquired habits and fallen into routines; her whole nervous system has been moulded and hardened. Even on the physical side of sex the organs are by no means always so ready to respond normally to the exercise of their natural functions. The difficulties of late primiparity are paralleled in respect of the late initiation of coitus. It is a mistake to suppose that early adolescence is an unfavorable age for coitus and involves a kind of violation; on the contrary, all the evidence goes to show that the young adolescent girl is much more apt for the initiation of coitus than the adult woman. The reasons for the delay in initiating coitus are not based on natural facts but on our civilized traditions. It is quite true that nature has aimed through the course of zoölogical evolution at the delay of maturity, but that end is effected by making puberty late, and in the human species puberty is very late. The demands of civilization make it desirable that we should postpone the relationships between the sexes to a still later period,

but in so doing it is inevitable that we should lay up for ourselves many troubles which only art can redress.

The Art of Love.—We are thus led to emphasize the therapeutic importance of the art of love. The emphasis is necessary because that art has too long been ignored or rejected. This heresy has indeed seduced many authorities whose experience should have taught them better. Certainly in the old classic days the neglect of the art of love in marriage, which at the Renaissance Montaigne again reflected, was intelligible. The art of love could be spurned partly because the erotic needs of the wife were never considered, partly because the erotic needs of the husband, it was generally conceded, could be gratified outside marriage. But along both these lines our attitude has now changed. We are tending to concede to women the same erotic privileges as to men; we are also tending to aspire after a monogamy which eventually may be real and not nominal only. Thus it comes about that today the cultivation of the art of love is inseparably associated with the cultivation of monogamy.

In its finest and subtlest manifestations the art of love is the outcome of a man's or a woman's most intimate personality. But in its lower ranges it is an extension of sexual hygiene and comes properly within the sphere of the physician who is called upon to give advice in the various difficult situations which may arise in marital life. Our advocates of sexual hygiene still ignore this matter but such an attitude cannot be maintained. It is no longer possible to assert that a knowledge of the methods of sexual courtship and intercourse comes by nature. As Paget remarked many years ago, it is certain that in civilization such knowledge has to be taught. It may be added that the same is even true, to a large extent, of uncivilized races, and training in these matters is part of the serious initiation of life for both sexes among various peoples.

Moreover, it is not sufficiently realized that among peoples living in natural conditions great attention is often paid to the preliminaries of intercourse, and a considerable variety of methods of intercourse prevail. Both these points are highly important. The prolongation of the preliminary courtship before the act is necessary on the physical side, in order to insure tumescence; it is necessary on the psychic side because without it the ideal element of love, which is essential to real marriage, cannot well be developed. The recognition that a number of methods of intercourse, far from being vicious perversions, come within the normal human range of variation is required because it is often found that when one method is unsuitable to secure gratification another method proves more successful. Sometimes years elapse before the conditions and the method are found which alone render coitus agreeable or even tolerable to a woman. Due attention to the preliminary courtship of the act of intercourse and to the method most suitable for adoption suffice to cure the majority of cases of sexual frigidity in women.

These things, as we are now beginning to learn, cannot wisely be

neglected by the physician. The sexual gratification of the woman is even a part of the act of fecundation, for her share in that act is not purely passive. A distinguished gynecologist of an earlier generation, Matthews Duncan, placed stress on this need of sexual pleasure in the woman in order to insure fecundation, and Kisch with other authorities of today confirm that doctrine. If we take a wider view of the marital relationship, the need for the complete sexual satisfaction of each party to the union is seen to be essential to their individual well-being, and at the same time to possess social significance as a guarantee of the reality and probable permanence of the union. To ignore this aspect of the matter, and to be content to preach virtue to dissatisfied lovers, is an almost imbecile puerility. It is much as though we were to declaim about virtue to a torpid liver or to preach against unnatural perversions to albuminiferous kidneys. It is our business so to exercise our skill that the erring organs are induced to enter the path of "virtue." And the proper method of dealing with the organism as a whole is not other than that for dealing with its separate parts.

If the voice of medicine is today often uncertain in dealing with these matters, it cannot be said that it is always the same so far as the voice of the general public is concerned. We find today the most extravagant and the most divergent views proclaimed with regard to the proper methods of sexual intercourse, usually with all the dogmatism of ignorance, with the calm assumption that he who expresses any other opinion is moving on a lower moral or spiritual plane, if indeed he is not wallowing in bestiality. It becomes, therefore, the more necessary that the physician should acquire the widest knowledge and exercise his best intelligence in this field.

Coitus Interruptus.—A common problem is presented by incomplete or interrupted coitus, withdrawal taking place before ejaculation. This practice is undoubtedly very widespread. It is held by the best authorities to be the commonest of all methods of preventive intercourse. It is also no doubt the most ancient, and is referred to in the book of Genesis as being adopted by Onan in order to avoid conception. Its popularity is due to its simplicity; it requires no forethought or preparation, and it costs nothing. But there can be no doubt that in relation to the well-being of the nervous systems the practice is sometimes open to question. It is quite true that in dealing with a practice so extremely prevalent it is not enough to say that it is often found injurious; we must have some knowledge of the number of cases in which it is not injurious. But it is clear that, in a certain proportion of cases—whether a large or a small proportion—various minor nervous conditions, indicating neurasthenic irritability, in the woman, the man, or both, seem to be traceable to interrupted intercourse. It is easily intelligible that this should be especially so as regards women. Husbands do not always display the consideration necessary to insure orgasm in their wives, and since orgasm is normally slower in women than in men, it is obvious that, in the absence of such consideration, withdrawal must frequently take place before the orgasm has occurred

in the wife, who is thus left in a state of acute nervous dissatisfaction and irritability. But the anxious apprehension and attention to his own state involved, on the husband's part, by premature withdrawal, and the jar caused by the sudden breaking off of the act at its culminating moment cannot fail sometimes to be injurious to him. It is necessary to be alive to the possible existence of this practice, and to suspend it if the symptoms seem to depend on it. For a very large number of people, there can be no doubt, interrupted coitus is unsuited and should give place to some better method of preventive intercourse. Most authorities regard the condom, or protective sheath, as entirely harmless. Interrupted intercourse should not be persisted in unless it can be so carried out, by mutual sympathy and coöperation, that no shock or apprehension is caused to the husband, and that the wife receives due satisfaction; the latter point may be achieved by delaying intercourse until tumescence is well advanced and she is approaching the orgasm.

Coitus Reservatus.—The opposite practice of prolonged or reserved coitus, with or without ultimate orgasm, has nowadays numerous advocates and a considerable body of practical adherents, not so many as interrupted coitus, because it is less easy to carry out. It was the ordinary practice of the Oneida Community, and it is advocated in the well-known book, *Karezza*. There can be no doubt that prolonged intercourse is highly agreeable to the woman partner, and without the slightest evil results; for she is left entirely free and is not precluded from experiencing the orgasm at its own good time. All women who have had experience of this method seem to approve of it. Some doubts, however, have been expressed as to its effects on the men who practise it. There is reason to think that in some cases greatly prolonged coitus may produce some of the same nervous results, though usually in a milder degree, as interrupted coitus. But in a large proportion of cases this is certainly not the case. The practice is not usually easy except for people with sound and well-balanced nervous systems, and such persons do not usually seem to be conscious of any evil results from the practice, provided, of course, that it is not carried to excess, and that orgasm is not unduly inhibited.

Frequency of Coitus.—An equally common problem is presented with regard to the frequency of coitus. Very widely divergent views are dogmatically set forth on this point. Some persons consider it normal and necessary to have intercourse every night, and they continue this practice for many years with no obvious bad results. Others assert that intercourse should never be practised except for the end of procreation—which might mean only two or three times in a lifetime—and they argue that such a practice is alone natural and moral. It is undoubtedly true that this is the only end in the intercourse of animals, but in determining what is natural for man we are not entitled to consider the practice of the animals belonging to remote genera. We have to consider the general practice of the human species, which by no means shows so narrowly exclusive an aim in procreation, although

unspoiled, uncivilized peoples are, on the whole (contrary to a common prejudice), much chaster and more sexually abstinent than civilized peoples. But even if it were not so we are quite justified in departing, if we think fit, from the habits of the lower races. Certainly the sexual organs were developed for procreation, not for the sexual gratification of the individual; certainly also the hands were developed to serve nutrition, not to play on the piano or the violin. But if the individual can find joy and inspiration in using his organs for ends they were not made for, he is following a course of action which, whether or not we choose to call it "natural," is perfectly justifiable and moral. Those who advocate imitation of the lower animals by confining sexual intercourse to the "natural" end of procreation are also bound to imitate the lower animals by discarding the "unnatural" use of clothing. Human art legitimately comes into human activities, but it introduces no real conflict with nature.

> "This is an art
> Which does mend nature, change it rather, but
> The art itself is nature."

Putting aside all dubious theories, it must be recognized, from a practical standpoint, that the natural range of variation as regards frequency of intercourse is very wide, and it is necessary to find out in each individual case what frequency best suits each of the partners, and how any discrepancy, if it exists, can be harmonized. Luther's dictum of twice a week commends itself to many, but it seems best to lay stress on the advantages of chastity (which is a very different thing from sexual abstinence[1]) and on the disadvantages of rendering sexual intercourse a frequent and spiritless routine. There are sometimes advantages in a certain irregularity, an unusually speedy repetition being followed by a long intermission; this repetition may especially occur at the woman's desire, just after menstruation. As desire is usually more irregular and more capricious in the woman than in the man it is the wife who may properly be regarded as the law-giver in this matter and the husband may find his advantage in according her this privilege. But, it may be repeated, it is in any case better to space out the acts of intercourse rather than to multiply their frequency. Its benefits, both physical and spiritual, tend to be lost by frequent repetition. Sexual union can only become the fine ecstasy it is capable of becoming when it is rare.

Coitus during Pregnancy.—The cultivation of coitus as a frequent habit is also undesirable because it renders very difficult the long intermission which may be necessary during absence, illness of one of the partners, and the period (a month or six weeks) following childbirth. The question of intercourse during pregnancy is difficult. Authoritative opinion, there can scarcely be any doubt, is increasingly opposed to intercourse at this time. But the physician is usually reluct-

[1] See Havelock Ellis, Sex in Relation to Society, ch. V.

ant to give advice in this sense on account of the domestic difficulties that may arise. It is largely, no doubt, a question of the predisposition to abortion, which varies greatly; some women, as it has been said, will abort if you sneeze in their presence, while others will not abort if you throw them out of the fifth floor window. Where the tendency exists it is certain that sexual abstinence should be enjoined. It is also desirable that it should be cultivated, in any case, during the latter months of pregnancy. But it seems necessary to exercise a certain amount of circumspection in recommending abstinence during the whole of pregnancy. A sympathetic and intelligent couple can often find their own solution of the difficulty, and there is not much risk of a habit of masturbation under such circumstances. But the physician who enjoins sexual abstinence during pregnancy may sometimes find that he has evoked difficulties it may be beyond his power to remove.

The Menopause.—The period of the menopause is sometimes marked by disturbances in the psychic sexual life, and especially by an exacerbation of desire—a final flare of the dying generative flame—perhaps accompanied by various caprices and suspicions and occasionally by actual perversions. These manifestations are most marked in the neuropathic. In married women the results are often aggravated by the fact that the husband is at this time beginning to lose sexual power and his love for his wife has entered into a stage of peaceful affection, rendering it difficult for him to respond to her renewed ardor, which thus tends to go into other directions and perhaps to assume the form of jealousy. There is here ample room for the exercise of sexual hygiene, and sensible advice may often help to clear up the situation.

Senile Sexuality.—It is a debated question how far there can be said to be any period in men corresponding to the menopause. If so it is certainly vague, as indeed is sufficiently indicated by the fact that the sperm-secreting function has no necessary final term and may be continued to advanced old age. There are, however, times in a man's life when, in some cases, a recognition of a sudden turn in the road enters consciousness with disturbing effect. In many cases, I would say, such a period occurs near the age of thirty-eight. The man suddenly realizes that the period of expanding power has reached its limits, even that there is a comparative failure of power, this also manifesting itself in the sexual sphere, and by a sudden revulsion of feeling he may begin to feel that he is no longer a young man but an old man. Such a period occurred at this age, even in the life of the robust and sexually athletic Casanova. It is really a sign of maturity rather than of old age, and in healthy men it should have a tonic, even though sobering, influence. Another period, perhaps more comparable to the menopause in women, may occur somewhat later in life. Féré places it at fifty, Kurt Mendel between forty and fifty. At this time the man may feel that he is now really beginning to grow old, and is becoming so regarded by women. By a kind of instinctive reaction the sexual instinct may arise to abnormal activity, and tend to roam, normally or abnormally,

beyond legitimate bounds. This tendency is by no means confined to men who have been lovers of women in youth; it is sometimes most conspicuous in those men who in earlier life have been severely restrained by moral considerations and who now act from a sort of subconscious impulse to make up for lost time before it is too late. It is the experience of most women that the attempts to seduce them in early life—the most daring and, it must be added, often the most successful attempts—have been made not by young men, whose attitude toward the woman who attracts them tends to be respectful and even reverential, but by elderly and even old married men, often by those whose character and position rendered such advances extremely unlikely. It has to be recognized that with the advance of age there is not only the liability to this eruption of sexual activity but also the development of a certain egotism and callousness which facilitates its manifestations; this is on the whole beneficial because it protects enfeebled old age from the risks of strong emotion, but it is liable to abuses of which the most dangerous occur should there be an efflorescence of activity in the sexual sphere. This late exacerbation of sexuality becomes still more dangerous if it takes the form of an attraction to girls who are no more than children and to acts of indecent familiarity with children. There is normally an attraction, of a more or less sexual character, on the part of the elderly toward the young; it is a counterpart of the sexual attraction often felt by young girls toward elderly men and by boys toward adult women. But in old men the attractiveness of the young may take on an abnormal and mischievous form owing to the decline of potency, which renders mere sexual contacts an adequate gratification. The older the man the more easily he is satisfied and the less compunction he appears to find in seeking such satisfaction, so that in sexual assaults the average age of the victim regularly decreases as the average age of the perpetrator increases. So long as the physical state is fairly sound and the mental state fairly intact, such impulses, when they occur, are doubtless easily restrained, and we are not called upon to regard as morbid the pleasure which the aged take in the freshness of the young. But with physical irritation, such as may arise from an enlarged prostate, and with psychic loss of control from incipient mental decay, there is risk that the barriers may be removed, and the man become a danger to himself and to others. It is in this way sometimes that senile dementia begins to declare itself before intellectual failure is obvious.

Dynamic Nature of the Sexual Impulse.—The whole path of sexual activity, we see, may be said, not only for the neuropathic but even to some extent for the normal, to be beset by perils. This is, in part, due to the comparatively late period at which the sexual impulse, as compared to the other impulses, undergoes development, in part, to the periodic and violent nature of the impulse, and in part, not the least part, to the rigid rules which religion, morals, law, and convention have combined to lay down in the sphere of sex. A wise and watchful hygiene is here forever necessary, and is the more imperative because,

when it is defective, we are often faced by situations which it is not always altogether within the sphere of medicine to treat. We have to regard the sexual impulse as a force, generated, we are now becoming accustomed to think, by powerful ferments springing up from within, and capable of taking on endless forms, healthy and morbid, normal and abnormal, forms that are sometimes scarcely recognizable as sexual at all, and which, while we can to some extent control or guide, we can never repress. This dynamic conception of the sexual impulse has long been vaguely perceived; Anstie used it half a century ago, to explain some forms of what we now call neurasthenia; James Hinton developed it more especially in its moral aspects; it underlies the conception of auto-erotism; recently it has been worked out with endless subtlety by Freud.

With his usual powers of luminous expression, Freud has lately set forth the varying conditions under which the difficulties of the sexual life may lead to nervous disorder. Since this statement may be regarded as standing independently of many of Freud's most disputed doctrines it may be worth while to summarize it briefly; Freud himself admits that it is unsatisfactory as a clinical classification of cases since the same case may exhibit the various conditions at different times, or even to some extent at the same time; but it is useful in helping us to an analytical knowledge of those conditions. Four types thus become recognizable: (1) The simplest and most obvious sexual occasion of neurotic disorder—an occasion to which most people are in some degree liable—is that of denial; the subject is here quite healthy so long as his need of love is satisfied in a real object in the outer world; and only becomes neurotic when deprived of this object without any adequate compensation; under these circumstances there are two possibilities of preserving health in spite of the denial of sexual needs, either the psychic tension is directed toward activity in the practical world and finally finds a real satisfaction of sexual desire, or, such satisfaction being renounced, the inhibited desires are sublimated into energy which is directed to non-erotic ends. In this process there is a danger of what C. G. Jung has termed introversion, that is to say, the inhibited sexual impulse, instead of being sublimated, may be turned from real channels into imaginative channels where it occupies itself with dream wishes. (2) In the cases of the second type the individual becomes morbid, not through any change in the outer world replacing satisfaction by the need for renunciation, but by his own inner efforts to attain satisfaction in the outer world. The subject becomes disordered by the inner difficulties which he finds in adapting himself to the real world and by his efforts to attain a normal method of sexual satisfaction which he is still unfitted for. (3) The next class of cases, in which various disorders occur through inhibition of development, is really an extreme group of the second class, and there is no theoretical ground for considering them separately, the sexual satisfaction remaining fixed on infantile aims which no longer accord with the individual's stage of development, and the conflict arises in the effort to subdue

the outgrown infantile impulses which still seek gratification. (4) In the fourth class of cases we find individuals who were formerly healthy becoming morbid without any change in their relation to the external world. But, on more careful examination, it is found that there has been, in consequence of biological changes such as the attainment of a certain period of life (puberty or the menopause), a change in the amount of sexual desire, this alone serving to destroy the balance of health and to introduce the conditions for the occurrence of neurosis. The inhibition of the sexual impulse through the external inability for its satisfaction here becomes pathogenic; the amount of sexual desire is not indeed measurable, it is a relative change in amount that causes the trouble, and the subject finds himself overburdened in the struggle with this relatively changed amount.[1]

Although it has no objective clinical validity, this abstract analytical classification may be said to sum up conveniently the various conditions with which we have been dealing. It indicates the lines on which the treatment of sexual disturbances in the nervous and psychic sphere, and still more the hygiene of the sexual life, most properly lie.

However sound the individual's constitution may be, the inevitable difficulties of the sexual life, and its constant readjustments to inner and outer changes in the conditions, involve difficulties of the kind we have dealt with. These difficulties are emphasized when there is an inherited morbid predisposition. The sexual impulse is a force, to some extent an incalculable force, and the struggle of the man to direct that force, when he and it are both constantly changing, and the conditions under which they move are also changing, is inevitably attended with peril, even when the impulse is normal or at all events seeking to be normal.

The conditions are still further complicated when the impulse is abnormal, that is to say, when it is not merely undue in amount or passing into undue channels, but when it has definitely taken on an abnormal form, a form which may sometimes be congenital, in so far as the forms of the sexual impulse can ever be said to be congenital. It is on some of these abnormal forms that we finally have to touch.

The Sexual Perversions of Childhood.—Since the sexual impulse before puberty is relatively undifferentiated, it is not surprising that many perversions may occur in a more or less germinal form even in children. It is necessary to remember that in so far as these germinal signs of perversion are thus the manifestations of an indefiniteness of instinct which at this age may be considered normal, they must not be too gravely regarded as indications of depravity or disease. For instance, a certain amount of pleasure in inflicting pain and in suffering pain—either in actual fact or in imagination—is not very rare in childhood, but, in its ordinary and slight manifestations, it cannot be regarded as an indication that we are dealing with a future

[1] S. Freud, Ueber Neurotische Erkrankungstypen, Zeitschrift für Psychoanalyse, 1912, Heft 6.

sadist or masochist. It remains generally and perhaps always true, however, that even slight and purely subjective impulses of perversion in childhood, though they may be conquered and eventually subordinated to the normal impulse, indicate a neurotic or neurasthenic trace. They are evidence that we are dealing with an individual who, even though he may be above the average in character or ability, will be specially liable to injury, and will need a corresponding degree of special care.

The chief sexual perversions may be conveniently regarded as symbolisms of the normal form of the sexual impulse. They are largely based on arrested developments, or exaggerations, of moments in the process of the normal impulse. The sexual energy runs into the channels thus formed, and is transmuted into new shapes which become complete symbols of the normal impulse. Many bizarre and repulsive impulses become intelligible when we thus trace them to their normal sources, and the most extreme perversions are seen to be linked on to manifestations which are common to mankind in general.

Scatologic Perversions.—The most usual erotic symbolisms in childhood are those of the scatologic group, the significance of which has often been emphasized by Freud and his school. The channels of urination and defecation are so close to the sexual centres that the intimate connection, physical and psychic, between the two groups is easily understood. Urination and defecation are processes which in any case could not fail to interest the youthful mind, for they gratify the childish impulse to make things, and are thus a rudimentary form of the artistic impulse, at the same time a manifestation of power. But they also appear to absorb something of the nervous energy which later goes into the sexual channel. There is undoubtedly a connection between nocturnal enuresis and sexual activity, sometimes masturbation. Freud believes that retention of the contents of the bowels for the sake of pleasurable sexual sensations may occur in childhood; and it is certain that even in later life the contents of the bladder are sometimes retained for the same reason. Children not unusually believe that the sexual acts of their elders have some connection with urination or defecation, and the mystery with which the excretory acts are surrounded helps to support this theory. An interest in these functions is not uncommonly prolonged beyond the age of puberty, especially in girls, but it tends to die out, sometimes with a feeling of shame at the attention bestowed on it, as the interest in sex matters develops. It is only in rare cases (apart from insanity) that the scatologic element persists in the adult sexual impulse, more commonly perhaps there is a more or less forced repression of the infantile scatologic interests which may then play the part attributed to them by Freud. But up to puberty, scatologic interests may be regarded as normal; at this age the child has still much in common with the primitive mind, which, as mythology and folk-lore show, attributes great importance to the excretory functions. We may regard these interests as merely a phase in normal development.

Exhibitionism.—Another symbolic manifestation of the sexual impulse, more serious in adult life, may occur innocently, and not abnormally, in childhood. This is exhibitionism. Several writers have pointed out that at puberty, and even in adolescence, an impulse of ostentation extending to the developing organs of sex (in girls more especially to the breasts) is not uncommon, though usually under control. In childhood this motive is not apparent. Apart from its mutual practice as a mere manifestation of simple interest in the sexual organs, it is then usually due to an impulse of mischief or rebellion, though, when persistent, it may have an obscure sexual cause, and be the sign of an irritation desiring unknown relief, a kind of vicarious masturbation, to be dealt with in the same manner as ordinary masturbation.

In adults exhibitionism is more definitely a symbol of coitus, but its forms fall into several groups. It has sometimes been regarded as a sign of epilepsy. It is undoubted that exhibitionism is frequently found in epileptics. But it is necessary to be cautious in reaching the conclusion that the act of exhibition occurs in a state of unconsciousness because the subject is epileptic. If it does so occur it is not exhibitionism, but only pseudo-exhibitionism and the subject is clearly not responsible. Consciousness and intention are essential to an act of true exhibitionism, and the person or persons before whom the exhibition is made—nearly always young women or children—are deliberately selected as is also the place of exhibition. Chronic alcoholism, the earlier stages of various forms of insanity, especially general paralysis, mental overwork and strain, often in persons of high character and unimpeachable morality, are also favorable to exhibitionism. In all such cases, usually occurring in middle or later life, the nervous texture is abnormally weakened, the finer feelings are blunted, the sexual powers are probably affected; in these circumstances the act of exhibition, and the shock it may produce, act as an emotional stimulant, and the exhibitionist craves for a repetition of his experiences. Frequently it is only by an accident that he discovers this stimulant, as when he is accidentally surprised in the act of urination. The line of treatment is in these cases fairly clear. If bad conditions can be removed and the tone of the nervous system be restored, there is often a gratifying and complete return to normal conduct.

In a more troublesome but rarer class of exhibitionists the practice is a fixed and clearly realized perversion. These men are often fairly young and of neuropathic heredity. They may be highly intelligent, but their obsession is irresistible, and in yielding to it they experience the gratification of performing a kind of psychic defloration. It is not usually possible to expect a complete transformation in the case of these men, who are constantly in danger of coming into conflict with the law.

Erotic Fetichism.—The most typical of the erotic symbolisms is constituted by erotic fetichism. Although an erotic symbolism such as exhibitionism may not be fetichistic every fetich is a symbol. The number of objects—not only parts of the body but inanimate things—

which may acquire special erotic significance, is practically infinite. There is indeed nothing that may not take on such significance. The necessary conditions seem to be a special predisposition, no doubt usually of neuropathic nature, though this is by no means always obvious, and a strong impression by which the fetich is poignantly presented to consciousness at a moment of strong sexual excitement, this event often occurring before or about puberty. The accidental association without the predisposition will scarcely suffice to evoke a fetich (except in slight degree), for such accidental associations are constantly occurring. Hirschfeld has lately argued that a fetich is frequently the real expression of the individual's special temperament. The soldier's red coat acts like a fetich on the servant girl because it is a symbol of the martial and virile character which appeals to her, and it may well be that in many less obvious cases the fetich really expresses ideals based on individual idiosyncracy. But in most cases this cannot be proved and is often, indeed, scarcely susceptible of proof on account of the neutral character of the fetich. A boy admires a woman who one day urinates in his presence so that he catches a glimpse of her abundant pubic hair, and such hair henceforth becomes an almost indispensable fetich to him; a youth is lying on the floor when a charming girl playfully places her foot on him, continuing to play with him thus until sexual excitement occurs, and he becomes a life-long foot fetichist. Such fetichisms in a slight degree are entirely normal. Every lover becomes especially attracted to some individual feature of the beloved or to some of the various articles that come in contact with her. But this tendency becomes abnormal when it is exclusive or generalized, and it becomes a definite perversion when the fetich itself, even in the absence of the person, becomes completely adequate not only to arouse tumescence, but to evoke detumescence, so that there is no desire at all for sexual intercourse. In the milder though definitely abnormal cases, the subject himself devises the appropriate treatment by taking care that his fetich is set, as it were, in the antechamber to coitus, so that it shall not cause any arrest or deviation of the emotions it arouses. In more serious cases the fetichist often derives so much gratification from his perversion, and finds this gratification so easy, that he has no wish to become normal. In some cases fetichism leads to various antisocial offences, especially to the theft of the desired fetich, such as shoes, handkerchiefs, or wearing apparel, and to the furtive cutting off of girls' braids of hair, etc. Without leading to criminal actions it may prove annoying from the undue sexual excitement caused, as in the case of a young woman for whom eye-glasses or spectacles were a fetich, and who experienced excitement whenever she saw them worn, even by a woman. In such cases hypnotism has been resorted to, sometimes with success.

Erotic Kleptomania.—Erotic fetichism is of considerable importance because, as is now becoming recognized, it lies at the root of some forms of kleptomania in women. A woman, sometimes at an early age, accidentally experiences sexual excitement by genital contact

with some material, such as silk or velvet. Thereafter she seeks such contacts for the sake of the gratification obtained, this gratification being accompanied by a failure of desire for coitus. In time the fetich tends to lose its power, and then it is that, by an instinctive effort to increase the power of the fetich, the woman acquires the habit of stealing it, for the emotional tension and apprehension accompanying the theft favor the occurrence of the orgasm, and a fetich that is calmly purchased proves of no effect. When it has served its purpose the stolen fetich is thrown aside, and a fresh theft is necessary every time. In such cases the theft is clearly not motiveless (as it is held that it should be in order to prove kleptomania), although, at all events at the outset, the motive can scarcely have been reasoned out. The real state of things is never spontaneously avowed, and it is, therefore, necessary for the physician to be alive to the possibility of erotic fetichism in such cases, for if the real condition of things is recognized at an early stage there is a chance that the patient may be saved from serious social trouble.

Of recent years Stekel, of Vienna, and others of the Freudian school have argued that all kleptomania is a manifestation of erotic symbolism. They believe that the impulse to the theft springs out of an unconscious sexual desire seeking gratification; and that the object stolen is a symbol of the sexual object unconsciously desired. This theory is somewhat speculative, and in the nature of it not easy of demonstration, since, *ex hypothesi*, the woman herself is unconscious of the underlying motive of her action. It may well be, however, that in definite erotic kleptomania the fetich is sometimes recognizably symbolic of the object of normal sexual gratification.

Homosexuality in Childhood.—It has already been remarked that the sexual impulse tends to be more diffused in children than it subsequently becomes in adults. Probably as a result of this diffusion it is not so precisely focussed on individuals of the opposite sex. Max Dessoir, twenty years ago, went so far as to say that up to the age of fourteen or fifteen in both boys and girls the sexual instinct is normally undifferentiated, and more recently Freud (following William James and others) has repeatedly stated that in all young subjects there is normally a homosexual streak.[1] As, however, Moll and others have argued, the belief in the completely undifferentiated state of the sexual impulse in early life is not justified. In some large schools, it is true (notably in many of the English Public Schools frequented by boys

[1] This result may be said to harmonize with the results independently reached by the physiologists. Thus Heape (Proceedings of the Cambridge Philosophical Society, 1907, vol. xiv, Part 2) concludes that the evidence shows that "There is no such thing as a pure male or female animal; all animals contain the elements of both sexes in some degree." Some of the reasons for this conclusion are fairly obvious and have long been recognized. They were indeed put forward as the basis of a theory of homosexuality some years ago by Kiernan and others; this explanation of inversion was finally adopted by Krafft-Ebing and is today accepted by Hirschfeld and many others as the most reasonable explanation. It is quite intelligible that the latent sexual element should more easily come to the surface in early life when the dominant sexual element is still too undeveloped to be able to suppress it.

of the upper social class), homosexuality is known to flourish, aided, it would seem, by a kind of tradition. But these appear to be exceptions. Many of us are unable to recall from the memories of school life and early associations the slightest evidence of the existence of homosexual attractions, such rare sexual attractions as existed being exclusively toward the opposite sex. It remains true that a certain liability to more or less romantic homosexual affection is found among boys, while girls, much more frequently, cherish enthusiastic devotion for other girls somewhat older than themselves, and very often for their teachers. Even, however, when these emotions are reciprocated, and even when they lead to definite sexual manifestations and gratification, they must not too hastily be taken to indicate either a vice calling for severe punishment or a disease demanding treatment. In the great majority of these cases the ultimate development is entirely normal. In dealing, therefore, with such manifestations, which are in most cases purely sentimental, and with only a vague sensual tinge, it is important to realize that we are probably in the presence of an early stage of what may be an entirely normal development. Much injury may be done to a boy's nervous and mental character, to say nothing of his future reputation, by the overhasty assumption that such manifestations are diseased or vicious. They can adequately be dealt with, when they need to be dealt with at all, by a kindly teacher or guardian who inculcates in the boy self-respect and regard for the welfare of others. In girls these manifestations usually escape serious treatment, partly because they are especially common, and partly because women, more often than men, are disposed to view them indulgently, if not, indeed, sometimes to share them.

Congenital Sexual Inversion.—It remains, however, of considerable importance to distinguish between these temporary manifestations of homosexuality and that congenital sexual inversion which is likely to indicate a permanent life-long direction of the sexual impulse and ideals. In some children the sexual impulse, far from being undifferentiated, is very definitely directed toward the same sex from the first. A diagnosis of congenital inversion cannot, however, always be made with certainty until the period of adolescence is entirely completed. A refined and intellectual youth with esthetic tastes, at the University, for instance, surrounded by attractive and congenial persons of his own sex, may remain indifferent to women and continue to cherish ardent sentimental friendships and admirations, reaching the conclusion that he must be an invert by nature. Yet when he leaves the University for the world he discovers that, after all, he shares the common passions of ordinary humanity. It is not, indeed, until the age of twenty-five has been reached that we can be fairly sure that homosexual impulses are not a phase of normal development.

But at a much earlier period it may be possible to see good reason to consider that we are dealing with a congenital invert. If we find unusual sexual precocity combined with complete sexual concentration on the same sex without any sexual attraction to the opposite

sex, though with perhaps an attraction to feminine interests and avocations, and if the family history shows a considerable tendency to nervous abnormality or to eccentricity, we may suspect, although we cannot be certain, that we are dealing with a certain type of congenital invert.

Retarded Inversion.—In other cases, however, the homosexual tendency may not appear until late in life. It was formerly taken for granted that in these cases the perversion is acquired and not congenital; this is, however, today disputed by many who regard these cases as due to the late development of a really inborn tendency, retarded congenital inversion.

In this way it comes about that we have to distinguish between true congenital sexual inversion (early or retarded), bisexual attraction in which the individual's sexual impulse goes out toward individuals of both sexes (most of these cases being apparently inverts who have acquired normal habits), and the large and vague class of the pseudohomosexuals, whose perversity is due either to temporary circumstances (as among sailors), to senile impotency, or to a deliberate search for abnormal sensations. Even in pseudohomosexuality we have to recognize, according to the prevailing view, that the homosexuality rests on a natural germinal basis, and cannot, therefore, be regarded as completely acquired, but as the development of a latent aptitude.

Importance of Sexual Inversion.—Sexual inversion is the most important of all the anomalies of the sexual impulse, partly because it is the most prevalent of them, and partly because it tends to occur in individuals who are by no means below the average in intellect and character, and are frequently above the average.[1] That is perhaps a reason why they are not easily recognized. Many physicians believe they have never seen an invert; even so experienced an alienist as Sir George Savage stated, a few years ago, that he scarcely ever meets with inversion.[2] It is not usually until some circumstance has opened our eyes that we begin to discover that in every social environment inverts are to be found. It is, however, only the inverts of the lowest, most degenerate, and sometimes mercenary class who are willing to betray their perversion. The suicides and mysterious disappearances which occur from time to time among highly placed persons, often of great ability, are frequently connected with inversion, though even

[1] Many notable monarchs (including Frederick the Great), statesmen, sculptors (including Michelangelo), painters, poets, composers (including Tchaykowsky), scholars, etc., both of the past and the present, are on reasonably good ground regarded as inverts. See, for instance, Moll's pamphlet on this subject (Berühmte Homosexuelle). It seems very doubtful whether we should term Shakespeare an invert, notwithstanding the Sonnets, but there is perhaps better ground to consider his immediate predecessor Marlowe as such, and Bacon seems almost certainly to have been an invert.

[2] The experience of another distinguished alienist is instructive. Professor Näcke at one time, never having to his knowledge met an invert, wrote to Dr. Hirschfeld, whose experience in this field is wider than that of any other physician, asking him to send an invert to his house. Great was Näcke's surprise when the visitor proved to be a man he was already well acquainted with, a near connection of his own by marriage.

after their fate has overtaken them the cause of it often remains a mystery to the general public. These persons have probably never confided in a physician. They realize that it would be futile, that the average physician is quite unprepared to deal with their case, if, indeed, he would not be shocked or disgusted.[1] Fortunately this is a state of things which will rapidly cease to exist.

It is not, however, only among the people who are in other respects obviously exceptional, whether degenerates or men of genius—though in these indeed it seems to be peculiarly prevalent—that sexual inversion is found. It is also found among a fair proportion of the apparently normal population, among people who are indistinguishable from the average. Inverts are sometimes referred to, even by physicians, as an "effeminate" class. That is scarcely the case. A certain group of them may indeed be so styled, they are physically and mentally flabby, self-conscious, vain, fond of jewelry and adornment; these men have the inclinations of the prostitute and in some cases actually become male prostitutes. But they are not more typical of inversion than the female prostitute, actual or temperamental, is typical of womanhood. A large number of inverts, indeed, are unusually refined, sensitive, or emotional, but the same may be said of many slightly neurotic people who are not homosexual. Others, both men and women, are not obviously distinguished by any special character which could reasonably suggest an abnormal direction of the sexual impulse. It is this fact which accounts for so many people believing that they have never come across an invert, while yet the proportion of inverts in the general population has by careful and well-informed investigation been found so considerable as to be well over 1 per cent. Among some classes of people, especially the cultivated and artistic classes, it is decidedly above this; while in the dramatic profession the proportion is very high; among hairdressers, also, inversion is said to be especially common. It seems probable that the prevalence of inversion varies but very slightly in different countries, though in certain special regions of

[1] A physician, a man of high character and intelligence, who is himself a congenital invert, though his moral traditions have not allowed him to seek the satisfaction of his impulses, writes as follows regarding his education at a world-renowned medical centre: "The first reference bearing definitely on the subject of sexual perversion was made in the class of medical jurisprudence where certain sexual crimes were alluded to—very summarily and inadequately—but nothing was said of the existence of sexual inversion as the normal conditions of certain unhappy people, nor was any distinction drawn between the various non-normal acts, which were all classed together as manifestations of the criminal depravity of ordinary or insane people. To a student beginning to be acutely conscious that his sexual nature differed profoundly from that of his fellows nothing could be more perplexing and disturbing, and it shut me up more completely in my reserve than ever. It was still more unfortunate that neither in the class of systematic medicine nor in the course of the lectures on clinical medicine was there the slightest allusion to the subject. All sorts of rare diseases—some of which I have not met with in twenty-one years of busy practice—were fully discussed, but we were left entirely ignorant of a subject so vitally important to me personally, and, as it seems to me, to the profession to which I aspired." This absence of reference to sexual problems in medical teaching has probably been the experience of most of us, though such defective teaching has usually been less unfortunate for the student personally than for those whom he might have been enabled to help.

Southern Europe it is said to be considerable, perhaps owing to the special habits or traditions of the people. It is sometimes said by people of various countries that sexual inversion is not so prevalent in their land as it is abroad. But they speak in ignorance of the real facts. The apparent variations are merely superficial and mostly due to the social and legal attitude toward inversion which prevails in a country. This does not mean that it flourishes where the laws are lenient, for, as in Germany, the existence of harshly repressive laws may merely serve to arouse an enthusiastic propaganda for their abolition, which thus calls attention to the prevalence of inversion. Homosexuality is the most prevalent of all the sexual perversions, for though the erotic symbolisms, in a slight and undeveloped degree, are probably more common, they are not nearly so often met with in a fully developed degree as is inversion. This prevalence is still further emphasized by the energy and character, in many cases, of the subjects of the perversion.

It is the gradual recognition of the prevalence of inversion among people of ordinary normal intelligence and conduct which has modified the opinions of alienists concerning the nature of this and, indeed, other sexual perversions. In medieval and earlier days homosexuality, in its only recognizable shape as sodomy and tribadism, was a sin and a crime, often expiated at the stake; it continued to be regarded only as a manifestation of disgusting depravity until well on in the nineteenth century; then there was a tendency to look on it as a sign of insanity, or at all events of degeneracy. At the present time there is a growing tendency among alienists in all countries to regard sexual inversion, and the sexual perversions generally, as by no means necessarily, *per se*, any evidence of insanity.[1] This conclusion seems to be inevitable when we find that such perversions occur in mentally capable and morally well-conducted and self-controlled people, many of whom are by no means overmastered or obsessed by their perversion, while some of them have never yielded to it at all. Congenital sexual inversion is an anomaly, an inborn variation, which is pathological in the same sense as color blindness or transposition of the viscera is pathological. But it cannot be regarded as degeneracy, except we use the word degenerate in a very careful and guarded sense, which is now unusual, and it has no necessary connection with insanity.

Treatment of Sexual Inversion.—We have to recognize that it is not safe to conclude that a case of homosexuality is really innate until the period of development is finally completed and we are dealing with a fully formed adult. The question of the desirability or not of treatment tending to direct the sexual impulse into the normal channel then becomes serious. At one time the necessity of attempting such treatment in all cases was taken for granted. This is not so now,

[1] See, *e. g.*, for the United States, a paper read at the Chicago Academy of Medicine, by Harold Moyer, Is Sexual Perversion Insanity? Alienist and Neurologist, May, 1907. The physicians taking part in the discussion, G. F. Butler, Lanphear, Kiernan, and Stearns, all agreed with Moyer that sexual perversion is no evidence of insanity. This is also the opinion of E. C. Spitzka.

although some authorities, like Moll, are in favor of this course even in some cases of congenital inversion, where the patient is anxious for the attempt to be made. If, however, we are clearly in the presence of a deeply rooted and complete case of inversion even the mere attempt at a radical unsettlement of the organized habits, conceptions, and ideals, involving a violation of the individual's fundamental nature, should not be made without careful consideration. It must be remembered that when we are dealing with a really congenital condition, all the usual methods of treatment become very difficult. Hypnotic suggestion, which is very useful in many cases of the most various kinds of sexual anomalies, is of comparatively little service in well-developed congenital perversions. It cannot even easily be applied, for the subject resists the suggestion, just as the normal subject usually resists under hypnotism the suggestion to commit a crime. Schrenck-Notzing, a good many years ago when sexual inversion was not commonly regarded as innate, expended very great time and trouble in treating inverts by hypnotism, and believed that he had been successful. But while an appearance of success, when success is marked by the ability to effect intercourse with the opposite sex, is admitted to be possible, with much good-will on the patient's part, it by no means follows that the ideals and desires have been really and permanently turned into a new channel; the result may merely be, as one such patient expressed it, that masturbation *per vaginam* has been achieved.

The psycho-analytic method of Freud has also been employed therapeutically in these cases, and for this method also some success has been claimed. Here again the same considerations must be borne in mind, although it is quite probable that by this method also, in cases in which the perversion is not strongly rooted, something may be achieved. Moll's associational therapy may perhaps be said to constitute a third psychotherapeutical method calling for notice in this connection, though it represents no new departure in manner of application. It is, however, perfectly sound and practicable, and consists in finding a bridge by which the subject's perverted desires may be brought into association with normal ends. Thus, if the subject is attracted to boys he may be led to cultivate an attraction for boyish women. It was already known that the invert is affected by such considerations as these, but Moll attempts to render such influences effective by a systematic encouragement of the paths of association into normal channels and discouragement of the paths to abnormal channels.

It must be added that all these methods, even in so far as they can be said to attain success at all, when applied to deeply rooted cases of inversion at best, for the most part, lead to a condition of bisexual attraction, by which the patient is enabled to find gratification with persons of either sex. The artificial shifting or loosening of the anchorage of the sexual impulse is not favorable to stability of character or to any high morality. Nor is it altogether a matter of congratulation to render an invert capable of procreation. The offspring of an invert united to a sound partner have, indeed, a fair chance of turning

out satisfactorily, but the risks are too serious to enable us to say that they may be lightly run. When an invert is profoundly dissatisfied with his condition and keenly anxious to become normal it is not easy to resist the attempt to render him normal. But it is not possible to take a sanguine view either of the prospects of success or the results of success when it is achieved.

There may still be ample room for treatment even when no direct attempt is made to suppress the inverted tendency. The invert is, in a considerable proportion of cases, generally and sometimes sexually neurasthenic; in some cases he is sexually hyperesthetic with the irritable weakness which commonly accompanies hyperesthesia; he is often sensitive and emotional, sometimes liable to panics of apprehension or anxiety in connection with his abnormality. In such cases the ordinary treatment of neurasthenia is indicated. Sedatives, especially the bromides, or, in some cases, tonics, may be useful. Electricity, balneotherapy, physical exercises, healthy avocations, change of air—all the ordinary methods of combating neurasthenia—prove beneficial in dealing with the neurasthenic troubles of inverts, as well as of other sexual perverts. Many inverts are little worried by the existence of their sexual anomaly so long as they are in good health, so that it is on this ground alone highly necessary to apply any special medical treatment that may be required and to insist on the cultivation of hygiene. The inversion will not thus be removed, but the anxiety it causes may be allayed, its excesses may be restrained, and it may be brought under rational self-control. This is in many cases all that is necessary, and in some cases, perhaps, all that is desirable.

Marriage and Sexual Inversion.—The question of marriage frequently arises in the case of inverts, although it is most usually settled without reference to the physician. As a method of treatment, whether the patient is a man or a woman, marriage must certainly be rejected, absolutely and unconditionally. Marriage may perhaps enable the invert to become bisexual if the sexual instinct has not already taken on this double aspect, but the chances that it will abolish the inverted impulse, unless it is already on the way to do so when the marriage takes place, are of the smallest. On the contrary, marriage, by the difficulties and the disgust which it may force the inverted partner to contend with, sometimes exacerbates the inversion. Cases have occurred where it was not until shortly after an apparently happy marriage that an invert has recklessly placed himself within the clutches of the law. In or out of marriage, normal sexual intercourse cannot be regarded as a remedy for inversion, least of all in the form of prostitution, which tends to present women in the aspect which is most repulsive to the invert. Platonic friendship with a refined and intelligent person of the opposite sex is much more attractive and more helpful to the invert, and if the platonic friend is of a type which in the same sex would appeal to the invert there is far more likelihood of the relationship serving as a method of associational therapeutics, and influencing the perversion, than when the question of sexual intercourse is directly approached. The invert who is innately inverted

is an invert all through, and any influences that modify his psychic state must be gradual and manifold.

While sexual intercourse, in or out of marriage, must never be regarded as a method of removing inversion, it is not necessarily to be concluded that in inversion—and the same is true of other profound sexual perversions—marriage is always to be prohibited. It is not very unusual to find inverts marrying. But it is desirable that such marriages should not be made in the dark or with illusory hopes. The conjugal partner should not be too young, and should be very accurately informed beforehand as to the precise condition of affairs and the probable prospects. Unions so formed may prove tolerable and even in rare cases happy, should the couple be congenial to each other. But it must always be remembered that the chances of complete sexual satisfaction on either side are small. The invert, unless genuinely bisexual (most bisexual persons are predominantly inverted), cannot experience with a person of the opposite sex that intimate unreserve and emotional extravagance which are of the essence of sexual love, and though potency is possible, it may only be secured by imagining that the partner is of the same sex or even by concentrating the thoughts on some attractive individual of the same sex. This state of things fails to give great satisfaction to the inverted partner, while the other partner, even if not clearly conscious of the imperfect character of the relationship, instinctively feels some degree of dissatisfaction and depression, if not repulsion. A union of this kind is often more happy when the attempt to secure sexual satisfaction is excluded, and the relationship is based on the satisfaction of other interests common to both partners.

Whether offspring should be one of these interests is a serious question which it is not always easy to decide resolutely in the negative. Certainly it may be laid down as a general rule, that it is not desirable a congenital invert should procreate. When, however, the inverted partner is otherwise healthy, and belongs to a fairly sound family, and the other partner is entirely sound and normal, there is a reasonable hope that the children may turn out fairly well. Children are frequently desired by the invert; they also form a consolation for the other partner and may serve to consolidate the union. But a marriage of this kind is not very stable; there is a prospect of separation or of alienation of the partners, so that the risks of an unsatisfactory home life for the children are considerable.

The Invert's Best Ideal.—Much the best result seems to be attained for the congenital invert, as modern society is constituted, when, while retaining his own ideals, or inner instincts, he resolves to forego alike the attempt to become normal and the attempt to secure the grosser gratification of his abnormal desires. For some, no doubt, this is scarcely possible, and for many it must involve painful struggles and impaired vital energy for the tasks of life. But in a large proportion of inverts the sexual impulse—although its abnormality may cause it to be unduly present to consciousness and the prohibition of gratification artificially emphasize the need for it—is not really strong. It may find a large measure of satisfaction in a Platonic friendship

with a congenial friend of the same sex. Such friendship may be fortified by a study of the ideals that are inculcated in the writings of Plato himself, and the Greek poets who were touched by inverted emotions; such modern writers as Walt Whitman and Edward Carpenter may also be named. It must, further, be remembered that the inverted sexual impulse is peculiarly apt for the ends of sublimation. It has often happened that inverts have devoted themselves with ardor to valuable social and philanthropic work for the benefit of the young of their own sex, and found joy and satisfaction in the task. It is true that such motives as these can only be applied to the educated and the enthusiastic among inverts. But, it may be repeated, such form a considerable proportion of the group of congenital inverts. They are apt to feel that they are homeless wanderers in a universe that was not made for them. It is worth while, by increasing their happiness and their usefulness, to enable them to feel that for them also, even as they are, there is still a place in the world.

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CHAPTER IV

THE EDUCATIONAL TREATMENT OF THE FEEBLE-MINDED

By HENRY H. GODDARD, Ph.D.

History.—The education of the feeble-minded may be properly said to have begun with Seguin in his physiological method of treating idiots. He has himself acknowledged his indebtedness to several people, notably Itard and his efforts upon the famous Savage of Aveyron. But these were sporadic attempts and never worked out systematically or applied extensively. Itard summed up his idea of how the savage should be educated in the following five propositions:

"1. To endear him to social life, by making it more congenial than the one he was now leading; and, above all, more like that he had but recently quitted.

"2. To awaken his nervous sensibility, by the most energetic stimulants; and at other times by quickening the affections of the soul.

"3. To extend the sphere of his ideas, by creating new wants, and multiplying his associations with surrounding beings.

"4. To lead him to use of speech, by determining the exercise of imitation, under the spur of necessity.

"5. To exercise during a certain time, the simple operations of his mind upon his physical wants; and, therefore, derive the application of the same to objects of instruction."

After somewhat more than a year's trial with this savage, he came to the conclusion that he was an idiot and changed his program to the following:

"1. The development of the senses.

"2. The development of the intellectual faculties.

"3. The development of the affective functions."

Seguin considered this an evolution in the mind of Itard and considered the second program more adapted to an idiot than the first one was.

We should today say that his first program was entirely suitable for the feeble-minded, while the second is too vague and general to be useful at all. Seguin also acknowledges indebtedness to the experiments of Pereire in the education of deaf mutes. From those experiments, he draws the following conclusions:

"1. That the senses and each one in particular can be submitted to physiological training by which their primordial capability may be indefinitely intellectualized.

"2. That one sense may be substituted for another as a means of comprehension and of intellectual culture.

"3. That the physiological exercise of a sense corroborates the action, as well as verifies the acquisitions of another.

"4. That our most abstract ideas are comparisons and generalizations by the mind of what we have perceived through our senses.

"5. That educating the modes of perception is to prepare pabulum for the mind proper.

"6. That sensations are intellectual functions performed through external apparatus as much as reasoning, imagination, etc., through more internal organs."

Seguin's Physiological Method.—Seguin definitely evolved and formulated a physiological method. It is a curious and interesting fact that although we have long since discarded the idea which seems to have held Seguin, viz., that idiots are curable, yet the method which he worked out so elaborately for the idiot, is, as a matter of fact, the basis of our best methods with imbeciles and morons today. He says: "To be physiological, education must at first follow the great natural law of action and repose which is life itself. To adapt this law to the whole training, each function in its turn is called to activity and to rest, the activity of one favoring the repose of the other; the improvement of one, reacting upon the improvement of all others, contrast being not only an instrument of relaxation but of comprehension also."

Although couched in language which the psychology of today cannot accept, nevertheless when we go beneath the words, we find that Seguin perceives psychological principles of great and far-reaching importance. For example, he says: "The general training embraces the muscular, imitative, nervous, and reflective functions, susceptible of being called into play at any moment. All that pertains to movement as locomotion and special motions, prehension, manipulation, and palpation, by dint of strength, or exquisite delicacy; imitation and communication from mind to mind, through language, signs, and symbols; all that is to be treated thoroughly. Then from imitation is derived drawing; from drawing, writing; from writing, reading; which implies the most extended use of the voice in speaking, music, etc. The senses are trained, not only each one to be perfect in itself; but, as to a certain extent other organs may be made receivers of food in lieu of the stomach and one emunctory may take the place of another, likewise, the senses must be educated, so that if the use of one be lost, another may feel and perceive for it." Then he says: "Let our natural senses be developed as far as possible, and we are not near the limits of their capacity. Then the instruments of artificial senses are to be brought into requisition; the handling of the compass, the prism, the most philosophical of them, the microscope and others must be made familiar to all children, who shall learn how to see nature through itself, instead of through twenty-six letters of the alphabet; and shall cease to learn by rote, by trust, by faith, instead of by knowing."

It must always be remembered that Seguin is speaking of idiocy

and that would be idiocy in its specific meaning as we use it now, not imbecility or feeble-mindedness (moronity), and he does not recognize any hereditary mental deficiency. For instance, his definition of idiocy is a "specific infirmity of the craniospinal axis, produced by deficiency of nutrition in utero and in neo-nati." Seguin lays great stress on all those things which we would now group together under the head of child hygiene. For example, he says: "The nutrition of idiots is to be attended to closely if we do not want to see them or a part of them decay. We must not begin their day's work like a duty but like a pleasure, with walks, sports, music, and end it in the same manner." Again, he says: "Let it be one of our first duties to correct the automatic motions and supply the deficiencies of the muscular apparatus; otherwise how could we expect to ripen a crop of intellectual faculties on a field obstructed by disordered functions?"

He is very insistent upon doing and knowing as contrasted with remembering. For example, he says again: "Exclusive memory exercises do not actually improve idiots, rather the reverse. They impede their future progress. Better one thing thoroughly known than a hundred only remembered. Again, we must teach every day the nearest thing to that which each child knows or can know. We must never confide to automatic memory what can be learned by comparison nor teach a thing without its natural correlations and generalizations. Otherwise, we give a false or incomplete idea or none but a dry notion of the name. What enters the mind alone, dies in it alone. Loneliness does not germinate anything. The contact of true perceptions produces an idea. The contact of a perception with an idea produces a deductive idea. The contact of two or more ideas with each other, gives rise to both induction and deduction and ideas of an abstract order."

Seguin is very insistent upon the use of contrast. For example, he says: "Contrast is power. Children will understand and do by opposition of differences what they could not by single presentation or by apposition of similarity. As to the instruments of teaching," he says, "we must use objects, pictures, photographs, cards, patterns, figures, wax, clay, scissors, compasses, glasses, pencils, colors, even books."

"Again pure air is important. Let us carry all our exercises through pure air and never command indoors what can be accomplished without."

He recognizes the importance of happiness. He says: "We must not forget to create gayety and mirth several times a day. Happiness is our object as much, nay more than progress, and children will not be sick if they laugh."

Speaking of what we would now call physical training, he says: "Our gymnastics in its generality is simple, managed with few instruments and mostly of the kind which received, several years after it was adapted to idiots, the pretty name of Calisthenics, under which it entered the fashionable academies." The object of all this, he says, "is the intellectualization of the muscles."

One final illustration will show the detail of Seguin's methods as applied to the very elementary matter of walking.

"If we take the child so low that he cannot and will not move, seated like an inert mass upon his chair, we must move him ourselves. To that effect we employ instruments of passive exercise, which act on activity nearly like personal impulses. The legs do not bend, we make them yield under the elasticity of a baby jumper; the feet do not come forward for the walk, let them encounter with the regularity of a walk a spring board, which receives and sends them back like an intelligent, indefatigable ground would do. Kneading the muscles, and like appliances, will give the pupil the muscular strength to walk; but he will not walk yet, and we make him resume in immobility the seated posture a little longer.

"But after all our passive exercises, he cannot yet stand erect and ready for a walk on a level floor. Then we raise him on two blocks or steps as narrow as his feet, and even we let him fall, being at hand to prevent an injury, but not to blunt the emotion and to restore him, if needed, to his up-isolation. There he must stand and stand firmly, too, having to react with an energy unknown to himself against the vacuum around, which invites him to fall. To resist the attraction of the void, he must strain his muscles in readiness for any emergency; he is anxious, he does not know exactly why, nor what not to do; but his strength is gathered, and if we have in front of him some other steps, and if we help him a little with our hand or finger at first, he will try, in the prospect of escaping the isolation, to pass one foot on the next step, on another, and on another, anxious, crying, but walking, in fact, for the first time. Left on the floor, he would have slid his feet very likely, but not walked all his life. He walks now, but with a swinging of the body, owing to the incapacity of the hands."

The extension and final object of all this he shows later on where after describing various devices for making walking difficult and complicated, he concludes "to walk among so many difficulties, is to think."

The foregoing is enough to show the fundamental principles of Seguin and also how capable it is if being extended to even the highest grades of defectives, even if one must stop with defectives; in other words, to determine the condition of the child to be educated and to give him concrete, definite things to do. Seguin's devices for teaching motor control and coördination are shown in Figs. 23 to 28.

In France the work which Dr. Seguin inaugurated at the Bicêtre, has been carried on for years by Dr. Bourneville and one may see there, as well as at the private institution conducted by Dr. Bourneville, the apparatus and methods described and used by Seguin before he left France to bring his ideas to America.

More recently Dr. Marie Montessori, of Rome, Italy, has utilized the same apparatus in the training of defective children in Rome and also has applied it to the training of normal children.

Definition and Classification.—The term Feeble-minded is now defined in a somewhat broad and practical way. It is not confined

PLATE I

Fig. 1

Fig. 2

Idiot, aged Fifteen Years; mentally, Two Years.

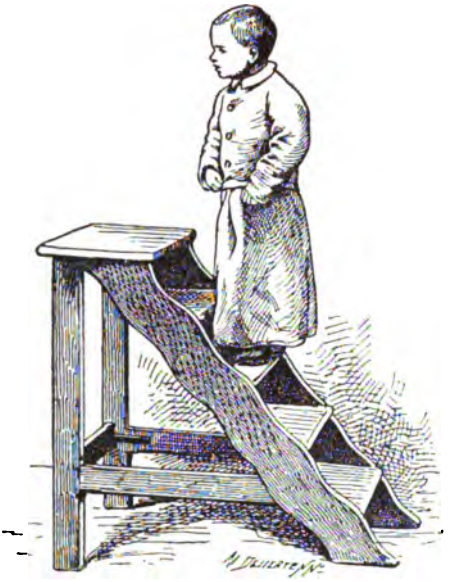
Fig. 3

Fig. 4

Middle-grade Imbecile, aged Seventeen Years; mentally, Five Years.

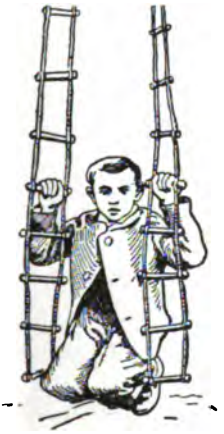
to the idiot and imbecile so well known and recognized by their external appearance, but includes that much larger group of people, who because of incomplete development of brain or mind, are unable to take their

FIG. 23



Steps. (From Bourneville.)

FIG. 24



Use of ladder, seated. (From Bourneville.)

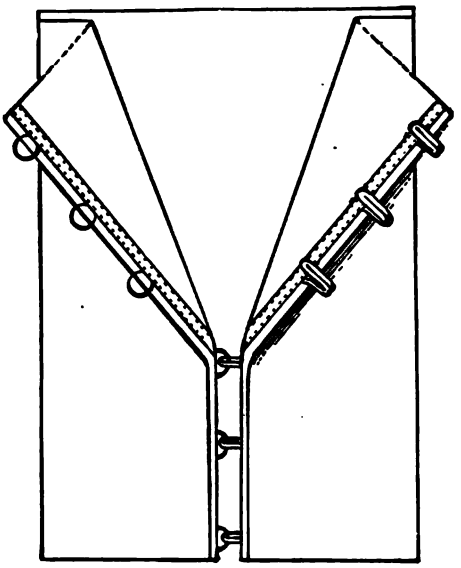
FIG. 25

Use of ladder, standing upright. (From Bourneville.)

place in the world and live a normal life; who are "unable to compete with their fellows in the struggle for existence;" who are "unable to manage their own affairs with ordinary prudence;" or who are unable

to exercise that self control which is necessary in order to live a moral life.

FIG. 26



Appliance for teaching buttoning. (From Bourneville, after Seguin.)

FIG. 27

Shoe for teaching of lacing. (From Bourneville, after Seguin.)

David Starr Jordan says: "A good citizen is one who can take care of himself and has something left over for the common welfare." The feeble-minded not only never has anything left over but can take care of himself only in rare instances and under the most favorable circumstances.

PLATE II

Fig. 1

Fig. 2

High-grade Imbecile, aged Thirteen Years; mentally, Seven Years.

Fig. 3

Fig. 4

High-grade Imbecile, aged Thirty-four Years; mentally, Six Years.

PLATE III

Fig. 1

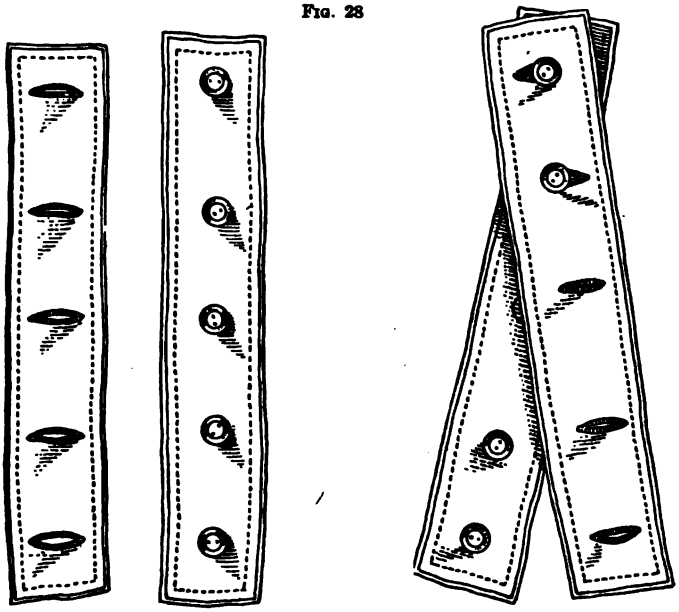
In centre a Moron, aged Twenty-four Years; mentally, Ten Years. At right, Moron, aged Eleven Years; mentally, Eight Years. At left, Imbecile, aged Nine Years; mentally, Six Years.

Fig. 2

Highly Trained Moron, aged Twenty-three Years; mentally, Ten Years.

The group is divided technically into three sub-groups. The term idiot as specifically applied, includes the group of people who are so lacking in intelligence that they are practically incapable of any training whatever. They are about like normal babies of one or two years of age.

FIG. 28



Appliance for teaching hooking. (From Bourneville, after Seguin.)

Next higher in the scale we have the imbecile (Plates I and II) who is capable of some training and is able to help himself and learn to do things in a routine way. He ranges from about three to seven years in comparison with normal children.

The third group is the moron (Plate III), or the high-grade feeble-minded, comparable roughly to normal children of from eight to twelve years of age.

Feeble-mindedness is not a disease in the sense in which psychoses are diseases. It is more often spoken of as an arrest of development. This arrest may take place at any age from infancy to about twelve years. If it occurs after the age of twelve, the person seems to be normal though he may be considerably below *average* intelligence. The difference between feeble-mindedness and insanity is expressed by the formula "an insane person is one who has had a good brain but it has become diseased or affected, resulting in a loss of mentality; while a feeble-minded person is one whose brain has never developed beyond the point at which it is found."

This view may be taken as the basis of our classification of the feeble-minded. It must be remembered at the same time that external causes may destroy or interfere with the proper functioning of the

brain so that we may have conditions which approximate those of the idiot and yet be the result of a diseased process working in the nervous system. The important point in connection with the treatment of such cases lies in the fact that if the condition of mental defect, as found, is the result of some cause which has deprived the individual of a power which he once had, the removal of that cause would possibly restore him to a normal condition; whereas, if his condition is simply the result of his nervous system having ceased its growth at a definite point, then our problem of treatment is what can be made out of a brain that has never gone beyond a fixed point of development. In other words, to revert to our classification, comparing defectives with the various years of normal childhood, a seven year old child whose development has stopped at that point, can never by any process be made to have the intelligence of an eight, nine, ten or twelve year old; but he can be trained to do such a variety of things as no normal child of seven was ever capable of doing, none of which, however, require more than seven-year intelligence.

On the other hand, if it should be the case of a person who had once been ten or twelve years old in development of the brain, but who had lost very much of that power through disease or some external cause, so that he is now of the mentality of seven, the removal of that cause might restore him to the mentality of ten or twelve. Hence, the importance of early determining the cause of the condition.

Theoretically, there might be cases in which it would be very difficult to draw the line between a psychosis and feeble-mindedness. For example, if a child of fifteen suddenly begins to deteriorate and drops back to an intelligence of about five or six, it would very probably be called a psychosis. If, however, a child of twelve stops his growth and simply drops back to ten, it would more likely be called feeble-mindedness, and yet the real condition would logically be determined by the cause, and if we could relate the symptoms to the well-known symptoms of some of the psychoses on the one hand, or to those of ordinary feeble-mindedness on the other, then our diagnosis would undoubtedly follow those indications.

The foregoing classification is psychological, that is to say, depends upon the development of the mind and compares it with the development in the normal child. Such classification is the most practical because it is the kind that is wanted by anyone who attempts to train or educate a feeble-minded person. We must know what their capacities are, where they are in mental development in order to know of what they are capable, or where training may profitably begin. But, as said above, it is also important to classify our cases as to cause.

CAUSES OF FEEBLE-MINDEDNESS

Heredity.—From this standpoint there are four divisions recognized. First and most important, is heredity. Somewhere from 65 to 80 per cent. of feeble-minded persons have had feeble-minded ancestry.

In other words, the condition is truly hereditary and we are dealing not with a condition of disease or injury but rather with a defective protoplasm which transmits its own limitations. These are cases in which there is true arrest of development, but the arrest is due to internal and not external causes. In other words, the child grows to that point which his protoplasm determines he shall grow to, just as the child of short stature grows to a certain point and then stops his growth because he has inherited a certain growth energy which ceases at a definite time. So these people grow to a certain point in the development of the brain and then stop because their protoplasm carries in it the determiner for that much growth and no more.

From recent studies, it seems highly probable that the arrest of development in these cases is comparatively sudden. In the case of what we call external or environmental causes, this is to be expected: A blow on the head for instance, or the toxin of disease would be expected to act immediately and stop the proper functioning of the brain. The mentality resulting would be that of the child at the time the accident occurred.

Similarly in the hereditary cases, it appears that the child grows at very nearly the normal rate until a rather definite period when the growth stops, and from that on he becomes more and more retarded. This does not mean that it is abrupt. There is in all probability a slowing down, but the period of slowing down appears much shorter than was formerly believed, and in some cases it seems clear that the child is normal until six or eight or even nine or ten and then the retardation sets in and a year or two later the arrest is complete and there is no change in intellectual capacity after that. Nor should this be understood to mean that training is useless from that time on. On the contrary, training is of the utmost importance. But we must know the kind of training that is feasible and the possibilities. One can train a seven-year-old child, but he cannot train him in those things that require ten-year-old intelligence. What this means may perhaps be best understood by an illustration from a normal adult person. It is probably safe to say that a normal adult of forty-five will never attain to any higher intelligence. Such a person may grow more learned or wiser but his actual grade of intelligence will probably not improve. Now such a person may learn a great many things and may learn to do a great many things that he has never done before. In doing this, he does not increase his intelligence but simply his knowledge and the number of things that he can do—his repertoire. In other words, his brain has ceased to develop, as a brain. His future mental work consists simply in extending its functioning to parts not formerly used or making new associations and combinations. The possibilities for this are limited only by his length of life and his opportunity.

In the same way the defective child whose brain has stopped its development let us say at the age of seven, has what we may call a seven-year-old intelligence. He may never get beyond that point, but being seven years old or rather having a seven-year-old intelligence

and living for forty years, he can, in that time, learn to do all the things that all the seven-year-old children that one can think of have ever known how to do. This is vastly more than any one seven-year-old child of normal growth could ever learn, because while he is learning one thing after another, he is also improving in intelligence, and by the time he has learned two or three things, he is no longer seven years in intelligence but has grown to be eight. And thus as we sometimes say, a man is a good shoemaker but he should never attempt to be a statesman because it is not in him. Such a man can be a good shoemaker; he can be anything that requires no more intelligence than it does to be a shoemaker. But the moment he attempts to become anything that requires a higher intelligence than that, he is sure to fail.

The history of higher education under modern conditions, when there are so many boys who go to college because it is the fashion or because their parents are ambitious, is abundant evidence of the truth of this statement, for their after-history shows that they did not and could not profit by what was offered them in college, and they finally settle down to a kind of life and occupation which can be served with the grade of intelligence which they possess.

Now the conclusion from this would be that these boys should not have attempted to go to college, but instead they should have been trained along those lines for which they have the capacity.

In precisely the same way, having determined the mental level of these cases of arrested development, our next problem is to train them in those things that come within their capacity.

Degree of Inherited Defect.—In these cases of hereditary feeblemindedness, it is important to know the degree of defect that has shown itself in the parents and grandparents and to separate so far as possible the hereditary influence from the environment in order that one may know how much of the condition is found is true heredity. The importance of this lies in the fact, now beginning to be recognized, that the human family shows a great many different grades or strains of intelligence, and that these strains breed true. That is to say, the children have the same grade of intelligence as their ancestors. The scale of intelligence extends all the way from the lowest degree that is capable of reproducing, up to the highest grade that is transmitted. This would, perhaps, not include a so-called "genius" who may be some kind of an abnormal sport and perhaps the result of environment or some other acquired character which is not transmitted. In this scale, there is a point below which the intelligence is not sufficient to enable the individual to function, in such a way as to survive, in the modern struggle for existence. In a society less humane than ours, such an individual would go to the wall and those strains would be speedily eliminated. But because our humanity has developed to a point where we consider that every individual that is born, must be kept alive, the result is that such persons are always a burden upon the rest and must be cared for by those of higher intelligence. It is evident that the degree of intelligence required to enable the individual

to survive is a relative matter. In a more primitive society, a much lower grade can be successful than in the more highly evolved social conditions of the present day.

This is one reason why we are becoming more conscious of mental defectives than ever before. Formerly, under the conditions of hand work and thin population and simple modes of life and ideals, many persons who are now unable to care for themselves, were able to get along fairly well. Under present conditions, these same individuals are incapable of self support and must ever be pensioners upon their more intelligent fellows. When that condition arrives, the intelligent ones are forced to consider the proposition of caring for the less intelligent and must decide upon the best method of caring for them.

One of the methods is to train them as carefully as they can be trained to do what they are capable of doing, so that they may be, first, as happy as possible; and second, as little a burden as possible. Hence, it is that the intelligent are vitally interested in the problem of the educational treatment of the defective.

Control of Heredity.—Furthermore, since we are now beginning to recognize how great is the percentage of these who are thus a burden upon the intelligent group, we are compelled to consider not only methods of training but also whether it is not right for us to insist that fewer of them shall be born. This leads logically to the question of regulating the matings, and the birth of the unfit. But that is no part of the present discussion, except in so far as it points out to us that we need to carefully differentiate between individuals who are mentally defective, because they belong to a defective stock, and those who are defective because of some acquired cause. In the former case, our system of training and education must also include the regulating of their offspring or providing such conditions that there shall be no offspring; whereas in the latter case, according to modern biological views, there is no danger of the reproduction of the particular defect and our training has only to consider the present welfare of the individual and of society, realizing that the next generation will not necessarily partake of the character of the present.

This leads us again to realize the fundamental importance of a knowledge of the heredity of any particular case and to realize that if it is a case of hereditary defect, that is to say, one of the strains of intelligence that is below the normal, we have an entirely different problem from that which confronts us in a case of acquired defect. In other words, we must recognize now not simply as Emerson said "a child's education should begin a hundred years before it is born," but rather, that it *did* begin, not only a hundred years but many hundred years before he was born, and having begun so far back, it is useless for us to attempt anything which goes counter to, or does not recognize, the limitations with which the child is born.

We pass now to the other causes of feeble-mindedness.

The remaining 20 or 35 per cent. of the feeble-minded are divided as to cause into the traumatic, the toxic, and defective by deprivation.

Traumatic Causes of Feeble-mindedness.—Traumatism includes injury to the mother previous to the birth of the child; an injury received at the time of birth through the use of instruments or other means of bringing about the advent of the child into the world, and third, injury during the infancy of the child, such as a blow on the head, a fall, or the like.

Toxic Causes.—The toxic cases are the result of poison in some form. This is more often the poison of disease, such as scarlet fever or even measles and meningitis, also syphilis and alcohol in the parents.

Defect Due to Deprivation.—The fourth group is commonly called mental defect due to deprivation, that is to say, from the injury to two or more of the sense organs whereby the person is incapable of communicating with the outside world, as for instance, deafness and blindness. Such a person would be a mental defective by deprivation unless very exceptional means were used to communicate with him and develop his mentality. This has been done in such cases as those of Helen Keller, Laura Bridgeman, and others.

Brain in the Feeble-minded.—An insistent question in feeble-mindedness and one which would seem to have an important bearing upon the problem of treatment, but one which has never been satisfactorily answered, is "what is the condition of the brain in the various types of feeble-mindedness?"

In the classic work of Hammarberg, we are shown the difference between the idiot brain and the imbecile and between the imbecile and the moron, but when it is learned that this was all based on a study of only nine brains, one feels disappointed and concludes that it is not safe to place too much reliance upon such meagre data. Nevertheless, it must be said that so far there is nothing to contradict what one would expect, namely, that if the arrest of development has occurred in the first two years we find a brain condition very much like that of the infant. If it occurs at the time that marks the individual as an imbecile, we find the brain varying from that of a three-year-old child to that of a seven-year-old, while if it is that of the moron type, we have the brain which to all outward appearances is perfectly normal and, indeed, will require the highest kind of microscopic technique in order to point out the exact differences between it and the brain of a normal person.

When we take up the other causes, we, of course, find various peculiarities of the brain. The traumatics show localized brain disturbance, such as distortion of the brain through the use of forceps at birth, or the thickening of the skull and of the meninges due to a serious blow after birth, etc.

The condition of the brain in those cases due to toxic poison is probably the result of a chemical change. But of this, nothing is known definitely since no satisfactory studies have been made.

In the case of defect by deprivation, we have merely the condition of the brain that naturally results from disuse. The brain has developed normally to all outward appearances but microscopic study shows defect in the unused region, *e. g.*, in the case of the brain of Laura

Bridgeman, the sight centre and the hearing centre were very badly medullated, and the defect showed in that way.

In cases of feeble-mindedness due to traumatism, operative treatment may be helpful in a certain small percentage of cases. For example, if there is a known contusion, and there is a decided scar or mark by which the surgeon may know where to operate, it is sometimes possible to trephine and either by removing the bone which has pressed in upon the brain or a blood clot that has formed or a tumor that has developed, relief may be obtained. The success of the operation seems to depend also somewhat upon the age at which it is performed and the time that has elapsed since the injury.

Little is known as yet of the fundamental differences in the capacity for training, in the cases of feeble-mindedness due to the different causes above mentioned. So far as known, a mental defect due to a traumatism which seems to have put the child into the condition of a normal child of say, five, is no different from a case of hereditary feeble-mindedness where the child has the mentality of five. Consequently, we must at present ignore to a large extent these causal differences, when it comes to the question of training.

TESTS FOR FEEBLE-MINDEDNESS

Our most important question then is, How shall we decide what is the mental development of any individual child? This has been for a long time a difficult question to answer. Indeed, until recently, the only practical answer to the question was that given by the method of Dr. Barr which was in effect, try and see. In other words, he classed mental defectives into the various groups in accordance with their trainability. They were tried in various lines. If it was found that they could not be trained at all, they were called idiots. If experience showed that they could be trained to self help, they were imbeciles. If it was found that they could be trained to help others, they were high-grade imbeciles, and if they could learn to read and write, then they were merely feeble-minded.

Of course, such a classification is wasteful of time and energy. Those who are experts could somehow approximate as to the mentality of the child in a short time, and they would never waste the time attempting to teach an idiot things that could only be learned by a moron. But, nevertheless, many times there were unseen factors, and many cases deceived even the elect.

De Sanctis' Tests. — Of late, there have been several systems suggested for testing feeble-mindedness. Professor Sante de Sanctis, of Rome, Italy, has devised six simple tests upon the result of which it is easy to determine that a child is, as he says, high grade, middle grade or low grade, or in our terms, moron, imbecile, or idiot.

The De Sanctis tests are as follows:

First Test.—Five balls of five different colors, red, green, blue, yellow, and violet or purple. They should not be too small and may be of

any convenient material. We use worsted balls of about two inches' diameter. The balls are contained in a box of suitable size.

The Test.—Remove cover and say "Give me a ball." (The experimenter notes the time it takes the child to respond and when the response is obtained, covers the balls.)

Second Test.—The box is again opened so the child can see and pick up or point to a ball.

The Test.—Now you say, "Which is the ball you gave me?" (Time and cover as before.)

Third Test.—A group of blocks consisting of five cubes, three cones or pyramids, and two parallelopipeds. The cubes are about an inch and a half on a side; the four-sided pyramids about the same base and two inches high; the parallelopipeds two and a half, by one, by a half inch.

The Test.—Exhibiting the blocks say: "Do you see this piece of wood" (cube)? "Show me all that are like it in that group." (Time and cover as before.)

Fourth Test.—A card about 12 inches x 14 inches has ten rows of fourteen figures each, the figures being a triangle, an oblong, and a square placed at random. The figures are about a half inch base, the oblong is half that height and the triangle is the altitude of the square (see cut). There is also a black wooden cube about three-quarters of an inch edge.

The Test.—Exhibiting the card say: "See this card. Point out every figure that you can find on the card that is like this piece of wood" (holding the cube before him). (Time, note errors, and omissions and replace the cover.)

Fifth Test.—There are twelve cubes varying in size from an inch to three inches.

The Test.—"Here are blocks of wood just like what you saw on the card."

"(*a*) Look carefully and tell me how many there are. (Child is allowed to count.)

"(*b*) Which of them is the largest?

"(*c*) Which is the one farthest from you?"

(Note the time, errors, and omissions. Replace cover.)

Sixth Test.—"(*a*) Are large things heavier or lighter than small things?

"(*b*) How does it happen that sometimes small things are heavier than large things?

"(*c*) Do distant things look smaller or larger than near ones?

"(*d*) Do they only *appear* smaller or are they smaller?"

In giving the tests see that the child is perfectly comfortable and happy; not fatigued, frightened, nor ill. Make a pleasant game of the whole procedure. Rest a bit after each test.

Use words that the child understands. A question may be repeated three times. If then he cannot answer, stop the examination. You have reached his limit.

If you are in doubt the whole can be repeated after a few days.

Results of Test.—Dr. de Sanctis claims that by these tests one discovers directly:

1. Capacity of adaptation to experience, which comprises adaptation to work, and certain conditions of attention, of perception, and of will.
2. Immediate memory of colors.
3. Capacity for recognizing colors and forms, and the recognition in a way to establish the identity of a plain figure with a solid.
4. The tenacity or duration of attention.
5. The capacity of enumerating objects and of judging of their quantity, size, and distance.
6. The capacity to reason about objects no longer present to the senses and on the general concepts which comprise not only attention and imagination but also the faculty of generalization and abstraction.
7. The rapidity of perceiving, of reflection, and of acting.

Classifications.—(*a*) Intellectual defect of a very high degree is established when the subject cannot go beyond the second question (idiot).

(*b*) Moderate degree when he cannot go beyond the fourth question, but does fifth with great difficulty and many errors (imbecile).

(*c*) Light degree when he does fifth but not sixth (moron).

A child who does all with normal rapidity is not defective.

Dr. de Sanctis says that the tests give excellent results with all children from seven to sixteen years of age. Dr. Decroly, of Brussels, finds that it agrees with his own institution classification.

Binet-Simon Test.—The de Sanctis tests were good and suggestive but did not grade close enough to be of very great help. Not until 1908, when the work of Dr. Alfred Binet and Th. Simon appeared, did we have anything that approximated to an accurate measurement of the mental capacity. The Binet Measuring Scale of Intelligence, first translated into English at the Vineland Training School, New Jersey, has proved to be a most marvelous measure of the intelligence of the child.

The following will give the reader an idea of what the Scale is and how it may be used, but it requires much study and considerable skill to use it with sufficient accuracy to make it of diagnostic value. It will give the inexperienced but intelligent person a truer idea of a child's mentality than can be obtained by any other means. But in the hands of a highly trained psychologist who has practised with it, it becomes marvellously accurate. It is with the help of this scale that we are now able to classify our children rather closely into those that are like normal children of one year, two years, three, four, etc., up to twelve. Although the revised scale has some tests for age fifteen and also a group that are called "adults," experience has not proved that these two groups are of sufficient accuracy to be valuable. Other tests are being devised and standardized which will undoubtedly supplement those of the Binet Scale. In the meanwhile, a great advance has been made in

the discovery of this scale; and by its use the mental development of the child may be very closely determined.

Author's Revision of the Binet-Simon Measuring Scale for Intelligence.—In the use of the Binet tests experience has emphasized two important dangers or liabilities to error. The one comes from the tendency of the optimistic, affectionate teacher examining a child from her own room to help too much and so credit the child with more than he himself can really do. The other is the opposite tendency of the teacher who either temperamentally or because of momentary conditions is not encouraging, but rather discouraging to the child, so that he does not do his best and, consequently, does not get up to the standard of which he is really capable. *One should never begin the examination of the child with any preconceived notions as to what the child is going to do or how much he knows.* Do not credit a child with a question because you feel sure he could do it under other circumstances even though he fails now. The probabilities are very great that you are mistaken in your estimate and the present result is truer than your estimate.

As a matter of technique, we find almost universally the best method of beginning these tests is to ask the child to look at the pictures. This appeals to almost every child and it also gives the examiner very quickly a clue to the grade of the child, especially after one has examined a few children and discovers how the different grades answer the question, "What do you see here?"

A needed caution here will also illustrate a point that applies to a great many of the questions and that is the great care needed in asking the questions. The form of the question is very significant. For example, in showing the pictures, the examiner who says "What are they doing here?" herself answers the very question that we are supposed to determine from the child, namely, does he see the action? If you ask, "What is he doing?" you compel him to see the action and he tells you, "Mowing grass" or "Cutting hair," or whatever the picture may be. The question should always be in the form of "What do you see here?" Not even "What is this?" or "What is that?" because that equally determines that the child sees a particular thing which again destroys the value of the test. And the same caution should be extended to many other questions.

The form in which the question is asked is of vital importance. It is given correctly in the text here and should be followed very rigidly except in such cases as it is suggested that the form of expression may be simplified to meet the child's understanding.

Professor Binet has published in the April, 1911, number of the *Bulletin de la Societé Libre Pour l'Etude Psychologique de l'Enfant* his latest revision of his measuring scale.

His changes are of three kinds: (1) There are the same number of questions for every age—except age five, where he still has only four. This will obviate a little difficulty that was met with in counting up a child's credits; (2) he has omitted some of the questions that were

most dependent upon conscious training and education, such as the reading and writing tests; (3) he has transposed some of the questions from one year to another with the idea of improving the scale. With these changes we cannot in every case agree.

The results of our experience with the tests on 400 feeble-minded and 2000 normal children convince us that Binet's original scale was quite as correct as his new one, but that some improvement can be made in certain other questions.

It is perhaps necessary to remind anyone who is about to use the test that in securing responses from children, whether in word or deed, many more things are involved than the intelligence of the child. The attitude of the examiner is all-important. Some questioners do not inspire confidence. Then there is the child. Some children are timid or bashful. Lastly, there is the relation of the two. Always the child must be won. Sometimes it is easy, sometimes it is difficult. The questioner should be very tactful and careful until he sees that the child is at ease. Usually the whole examination can be referred to as a game and carried out in that spirit. At all events *get down to the level of the child.* Never tell a child his answer is wrong. Always encourage. Always tell him he has done well if he has done anything at all and if he has done nothing pass it by as easily as possible. Some children if they have failed once and are made conscious of it, will not try again. On the other hand, do not insist that he respond, just because it seems to you that he must know how. He may not know. In other words, when a child fails to reply try to understand why, and act accordingly.

The following are the tests proposed by Binet and Simon for each age from three years to thirteen. If a child succeeds in the tests for his age he is normal. If he can succeed only in those given for a child a year younger than he, he is backward to the extent of one year, and similarly for two and three years. If he is more than three years backward he is mentally defective.

To allow for some unevenness in development Binet finds it satisfactory to adopt the following conventions in estimating the results:

A subject has the mental development of the highest age for which he has succeeded in all the tests, *e. g.*, if he has succeeded in all the tests for nine years, he is credited with the intelligence of a nine-year-old child.

One more correction is necessary. Once a child's intellectual level is fixed, he is to be advanced a year for every five higher tests that he has succeeded in and two years for every ten tests that he succeeds in. *e. g.* John is nine. He fails in two of the nine-year tests. We should thus class him as intellectually eight years old. But he has done three of the nine-year tests and three of the ten-year tests, making six in all. He is therefore advanced a grade and called nine or normal.

This seems at first sight very artificial and too exact to be true, but Binet assures us that he has tested it very carefully and finds it amazingly accurate. We proceed with the tests.

Children of Three Years.—1. WHERE IS YOUR NOSE? YOUR EYES? YOUR MOUTH?

One of the best signs of awakening intelligence in young children is the comprehension of spoken words. We test this by asking these questions which can be answered by a gesture.

2. REPETITION OF SENTENCES OF SIX SYLLABLES.

It rains. I am hungry (6 syllables).

Experiment proves that it is easier for a child to repeat words than to speak a word of his own. If a child does not respond one may try him with two syllables ("*mama*") then four, etc.

A child of three repeats six syllables but not ten. There must not be a single error.

3. REPETITION OF FIGURES. "6, 4."

A child of three can repeat two figures. Figures require closer attention than words because they mean nothing to him. Pronounce the figures distinctly, one-half second apart and without emphasis on any one figure.

4. DESCRIBING PICTURES.

A picture is shown to the child with the question "*What do you see?*" The pictures must be chosen with some care. Each one must represent some *people* and *a situation.* Binet uses three pictures: The first is a man and a boy drawing a cart loaded with furniture. The second, a woman and an old man sitting on a bench in a park in winter. The third a man in prison looking out of the window; a couch, chair, and tables.

A child of three names the things—enumerates. He does not describe any actions in the pictures.

5. NAME OF THE FAMILY.

All children of three know their *first* name. They sometimes know the *family name* but not always.

Children of Four Years.—1. SEX OF CHILD. *Are you a little boy or a little girl?*

If testing a girl, give the question in this form: *Are you a girl or a boy?*

Children of three do not know. Children of four always do.

2. NAMING FAMILIAR OBJECTS.

One takes from his pocket *a key, a knife,* and *a penny.*

The answers should indicate that the child knows what each is. This is a more difficult use of language than naming objects in the picture because there the child chose his own object to name; here we say, "*What is that thing?*"

3. REPETITION OF THREE FIGURES. "7, 2, 9."

4. COMPARISON OF TWO LINES. "*Which is the longer line?*"

Draw two parallel lines 3 cm. apart, the one 5 cm. and the other 6 cm. Hesitation is failure.

Children of Five Years.—1. COMPARISON OF TWO WEIGHTS. "*Which is the heavier?*"

Use weighted blocks of wood of equal size and appearance.

Compare 3 grams with 12 grams and 6 grams with 15 grams. Note the curious and interesting errors that are made.

2. COPYING A SQUARE.

Draw a square of 3 or 4 cm. Have child copy it with ink—not pencil. Pen makes it harder. It is satisfactory if one can recognize the square.

3. REPEATS SENTENCE OF 10 SYLLABLES.

Use this: His name is John. He is a very good boy.

4. COUNTING FOUR PENNIES.

Place four pennies in a row. Insist that child count them with his finger.

At three years a child does not know how to count four; at four, half succeed; at five, all succeed.

5. GAME OF PATIENCE WITH TWO PIECES.

Cut a visiting card diagonally. Place a whole card on the table. Nearer the child place the two pieces with the two hypotenuses away from each other. Ask the child to make a figure like the uncut card. One child in twelve fails.

Be careful (1) that child does not fail because he is too indolent to reach out and try; (2) that one of the pieces does not get turned over —because then it is impossible; (3) that you do not show by a look whether the child is right or wrong.

Children of Six Years.—1. DISTINCTION BETWEEN MORNING AND AFTERNOON. "*Is this morning or is it afternoon?*" It should be remembered that a certain type of child will always answer the *last* of two alternatives. Therefore if the time is afternoon, it is well to put the question. "*Is this afternoon or morning?*" Not before six do children know this.

2. DEFINITION OF KNOWN OBJECTS. "*What is a fork? a table? a chair? a horse? a mama?*"

There are three kinds of response: (1) Silence, simple repetition, or gesture. *e. g.* "*A fork is a fork,*" or pointing says "*That is a chair.*" (2) Definition in terms of use, "*A fork is to eat with.*" (3) Definitions *better* than by use. This includes all answers that describe the thing or even begin with "*it is a thing*"—"*it is an animal,*" etc., all of which expressions are not so child-like as the simple "*use*" definitions. In deciding which type of answer we shall credit to the child, we accept three out of five.

At four years half the children define by "*use;*" it increases a little at five and at six practically all define this way. Not before nine do the majority give the definitions that are "*better than by use.*"

3. EXECUTION OF THREE SIMULTANEOUS COMMISSIONS. "Do you *see this key? Put it on that chair. Then shut the door. After that bring me the box that is on the chair. Remember, first the key on the chair, then close the door, then bring in the box. Do you understand? Well, then, go ahead.*" Such are the directions. They must all be done without further help, hint, or suggestion. At four years almost none can do this, at five about half; at six all, or nearly all, succeed.

4. RIGHT HAND. LEFT EAR.

One says to child "*Show me your right hand*" and when that is done "*Show me your left ear.*" There are, in the main, three kinds of response: (1) Does not know right and left. Shows right hand because of natural tendency. Shows right ear also. (2) Knows but is not sure. Shows right hand, then right ear but corrects himself at once. (3) Knows and without hesitation touches right hand and left ear. (2) and (3) are considered satisfactory. If child touches one hand with the other in such a way that one cannot tell which hand he means, ask him to hold his right hand up high. Be very careful in this test to give no hint by look or word. At four years no child points to left ear; at five half of the children make a mistake; at six all succeed.

5. ESTHETIC COMPARISON. "*Which is the prettier?*"

Binet uses six heads of women in three pairs, the one pretty and the other ugly or even deformed (Fig. 29). Care is taken that the pretty one is now at the left and now at the right. At six all choose correctly; at five about half.

Children of Seven Years.—1. COUNTING THIRTEEN PENNIES.

Pennies must be placed in a row and counted with the finger. Finger must touch the piece at the same time that the child names the number. No piece must be counted twice and none omitted. The number thirteen must be given exact. At six years two-thirds fail; at seven they make no errors.

2. DESCRIPTION OF PICTURES.

Same pictures as used in age three. Child now *describes* things instead of simply enumerating.

3. UNFINISHED PICTURES.

One shows four sketches of such as Fig. 30. Ask the child "*What is lacking in that picture?*" Child must answer three out of four correctly. At five years none are correct; at six errors number two-thirds, at seven the great majority are accurate.

4. COPYING A DIAMOND.

Draw a rhombus about the size of the square used for age five. Have child copy this with pen. The result is satisfactory if it would be recognized as intended for a diamond-shaped figure.

5. NAME FOUR COLORS. Use red, blue, green, and yellow papers, in pieces about 1 x 3 inches. Touching each color with the finger ask "*What is that color?*" It will be seen this is a test of color names not of discrimination. It should be done in six seconds.

Children of Eight Years.—1. COMPARE TWO THINGS FROM MEMORY. "*What is the difference between a butterfly and a fly?*" "*Wood and glass?*" "*Paper and pasteboard (or cloth)?*" The question may be differently put so as to make it intelligible as possible. *e. g.* "*Why are they not alike?*" etc.

Two at least out of the three pairs should be answered correctly. If it takes more than two minutes it is a failure.

At six a third of the children do this test; at seven nearly all; at eight all.

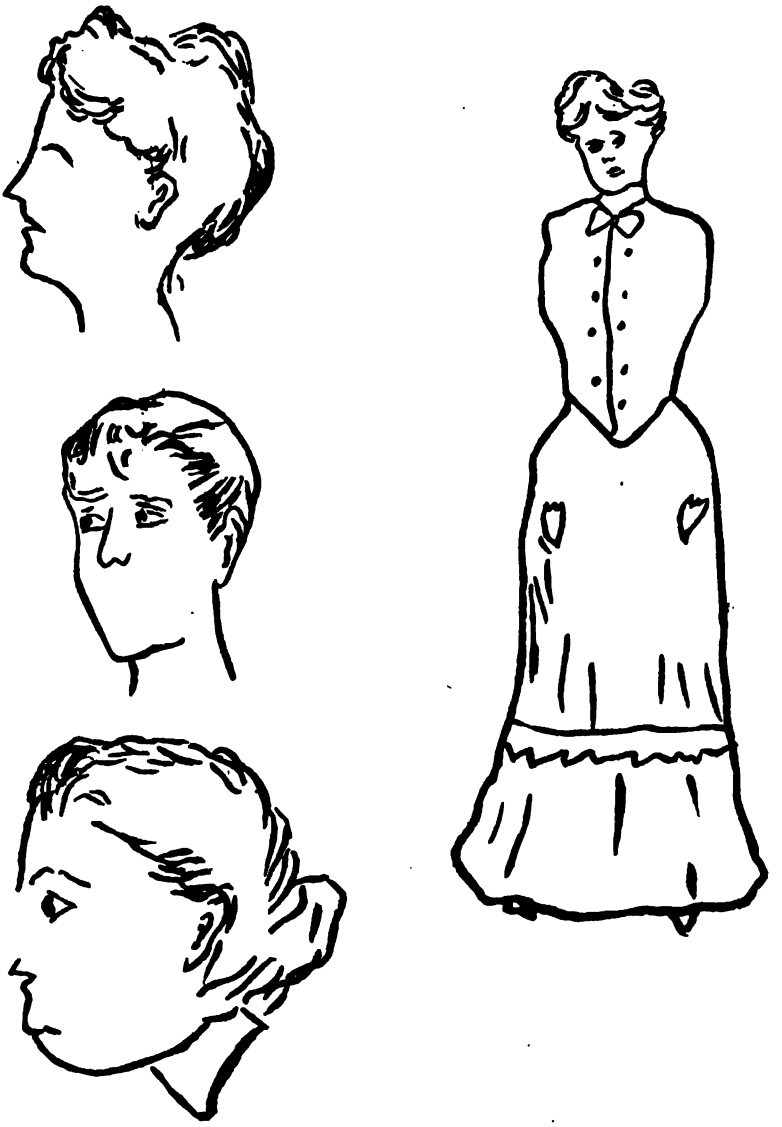
FIG. 29

Binet test, age six years. Esthetic comparison.

2. COUNT BACKWARD FROM 20 TO 1.

This should be done within twenty seconds, and only one mistake allowed of omission or transposition.

FIG. 30



Binet test, age seven years. Unfinished pictures.

3. THE DAYS OF THE WEEK. These must be given in order without omission within ten seconds. Most persons would expect that this could be done before age eight, but it cannot.

4. COUNT NINE "SOUS" (3 SIMPLES AND 3 DOUBLES).

(Our two-cent piece is now so rare that we use 1-cent and 2-cent postage stamps.) Arrange in order, 1, 1, 1, 2, 2, 2. "*How much are they worth?* (*How much money to buy them?*)" "*Count.*" It should be done within ten seconds without any error. There are three ways of counting. One child says 1, 2, 3, 5, 7, 9. Another says 1, 2, 3, 4–5, 6–7, 8–9. The third says, 1, 2, 3, 4, 5, 6, which is, of course, wrong. A large majority do this test at seven years. But all do it at eight.

5. REPETITION OF FIVE FIGURES. "4–7–3–9–5." Same method of procedure as given above, age three. Only three-fourths of the children succeed.

Children of Nine Years.—1. MAKE CHANGE—9 CENTS OUT OF 25.

Play store. Using real money. If child's cash consists of 25 pennies, 5 nickels, and 2 dimes, interesting degrees of intelligence will be discovered by noticing the coins he uses in making change. Child is storekeeper. One buys something that costs 9 cents. Child must actually give 16 cents as well as say it.

At seven no one can do this test; at eight a good third succeed; at nine all do it. See Revision.

2. DEFINITION BETTER THAN BY "USE."

This was explained under age six. At ages seven and eight, half the children give definitions of this kind. At nine they all do.

3. NAME THE DAY OF THE WEEK, THE MONTH, THE DAY OF THE MONTH AND THE YEAR.

The test is passed even if the day of the month is as much as three days wrong. Children least often know the year.

4. THE MONTHS OF THE YEAR.

Recited in order within fifteen seconds. Allow one omission or transposition.

5. ARRANGEMENT OF WEIGHTS.

Use five wooden cubes of same size and appearance but loaded so as to weigh 6, 9, 12, 15, 18 grams. (Metal pill boxes may be used.) Place the five boxes on table in front of child and explain that they do not all weigh alike and he is to lift them one at a time and put them in order from the lightest to the heaviest. (The initial of each weight written on the bottom of each box makes it easy to see if they are right.) Record the exact order in which the child has placed them. Three trials are made. Two must be absolutely correct. The whole operation must not take over three minutes.

Children of Ten Years.—1. NAMING NINE PIECES OF MONEY. One may use cent, nickel, dime, quarter, half dollar, dollar, two dollars, five dollars, and ten dollars.

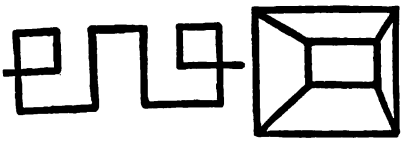
Pieces should be on table in a row but not in regular order of value. Point with finger, and name as he points.

2. DRAW DESIGN FROM MEMORY.

Use this design (Fig. 31). Expose ten seconds. Have child draw his design on back of record sheet. (This should be considered satis-

factory if one who did not know just what the design was would recognize it. No account is taken of proportions or crookedness of lines, or perspective. It is well to remind the child before beginning that he is to draw both parts.) "Tests attention, visual memory, and a little analysis."

FIG. 31



3. REPEATS SIX FIGURES.

4. QUESTIONS OF COMPREHENSION. FIRST SERIES.

What ought one to do

1. When one has missed the train?

2. When one has been struck by a playmate who did not do it purposely?

3. When one has broken something that does not belong to one?

At seven and eight half respond correctly; at nine three-fourths; at ten all. If two questions out of three are answered correctly the test is passed.

SECOND SERIES.

What ought one to do

1. When he is detained so that he is liable to be late for school?

2. What ought one to do before taking part in an important affair?

3. Why does one excuse a wrong act committed in anger more easily than a wrong act committed without anger?

4. What should one do when asked his opinion of someone whom he knows only a little?

5. Why ought one to judge a person more by his acts than by his words?

Allow at least twenty seconds to each question. Three of the five must be answered correctly. At seven and eight no one responds to a majority of this second series; at ten half are successful; it is, therefore, a transition between ten and eleven years.

5. USING THREE WORDS IN A SENTENCE.

Binet uses the words *Paris, fortune, river*. We should say *Philadelphia, money, river*. This is the first time in these tests that we have required the child to "invent" his own expression. There are three forms of answers: (1) Three separate sentences. (2) Two ideas united by a conjunction. (3) A single idea involving the three words. Only the last two are satisfactory for the test. We allow one minute. At eight no one succeeds. At nine one-third and at ten one-half get it right.

In this test may be seen a distinction between intelligence and judgment. Some children give a complete sentence with the three words but they do not make sense.

Children of Eleven Years.—1. CRITICISM OF SENTENCES.

These are sentences that contain some absurdity or ridiculous expression. Binet explains that formerly he used sentences like "*is snow red or black?*" but he found that many bright children fell into the trap and others through confidence in the questioner failed to look for an absurdity. Therefore, he has changed the plan and now says to the child, "*I am going to give you some sentences in which there is nonsense. You listen carefully and see if you can tell me where the nonsense is.*" Then he reads the sentence very slowly.

These are the sentences:

1. *An unfortunate cyclist has had his head broken and is dead from the fall; they have taken him to the hospital and they do not think that he will recover.*

2. *I have three brothers, Paul, Ernest, and myself.*

3. *The police found yesterday the body of a young girl cut into eighteen pieces. They believe that she killed herself.*

4. *Yesterday there was an accident on the railroad. But it was not serious; the number of deaths is only* 48.

5. *Someone said: "If in a moment of despair I should commit suicide, I should not choose Friday, because Friday is an unlucky day and it would bring me ill luck."*

The test should last about two minutes. Three at least of the questions should receive good answers. At nine years hardly any child gets them; at ten scarcely a fourth; at eleven a half.

2. THREE WORDS IN A SENTENCE. (Given under age ten.)

At eleven all succeed.

3. 60 WORDS IN THREE MINUTES.

"*Say as many words as you can in three minutes;* as table, board, beard, shirt, carriage." We tell him that some children have named 200 words.

This test gives a splendid opportunity to appreciate the intelligence of a child. At least 60 words must be given.

4. RHYMES.

Explain what is meant by one word rhyming with another. Illustrate. Then ask for as many words as the child can think of, that rhyme with a given word. *e. g.* *Day* or *spring* or *mill.*

One minute is allowed. Three rhymes with one word should be found in the given time.

5. WORDS TO PUT IN ORDER. "*Make a sentence out of these words.*"

Hour—for—we—early—at—park—an—started—the.
To—asked—paper—my—have—teacher—correct—the—I.
A—defends—dog—good—his—bravely—master.

Place the printed words before the child. He gives the sentence orally.

Time limit is one minute for each sentence. At least two must be given correctly.

Children of Twelve Years.—1. REPETITION OF SEVEN FIGURES. 2, 9, 4, 6, 3, 7, 5. 1, 6, 9, 5, 8, 4, 7. 9, 2, 8, 5, 1, 6, 4.

Tell the child there will be seven figures. Give three trials. One success is sufficient.

2. ABSTRACT DEFINITIONS. *"What is charity? Justice? Goodness?"*

Two good definitions must be given. It is often somewhat difficult to decide if the definition is passable. If it contains the essential idea it must be accepted, however badly it is expressed. At ten years a third succeed; at eleven they are generally successful.

3. REPETITION OF A SENTENCE OF 26 SYLLABLES.

See Revision for new sentence.

This should be done without error.

"Children, it is necessary to work very hard for a living. You must go every morning to your school."—24 syllables.

"The other day I saw in the street a pretty young dog. Little Maurice has got spots on his new apron."—26 syllables.

"Ernest is praised very often for his good conduct. I bought at the store a beautiful doll for my little sister."—28 syllables.

"There occurred on that night a frightful tempest with lightning. My comrade has taken cold. He has a fever and coughs very much."—30 syllables.

4. RESISTS SUGGESTION.

Prepare a little booklet of six pages. On first page draw in ink two lines horizontal; the one to the left two inches (4 cm.) long, the one to the right two and a half inches. On second page, left line is two and a half, right, three inches. Third page, left line three and right one three and a half inches. On three remaining pages all lines are three and a half inches long. The lines on each page are in same straight line and separated by a half inch.

The idea of the test is this: Child having said the right-hand one is longer for three times, will he continue even when he comes to those that are alike, or will he "resist the suggestion" and say they are alike?

Care must be exercised in asking the question. For the first two pages ask, "Which is the longer line?" but for the others say merely, "And there?"

5. PROBLEM OF VARIOUS FACTS. (*What is it?*)

"A person who was walking in the forest at Fontainebleau suddenly stopped much frightened and hastened to the nearest police and reported that he had seen hanging from the limb of a tree a ————" (after a pause) *"what?"*

"My neighbor has been having strange visitors. He has received one after the other a physician, a lawyer, and a clergyman. What has happened at the house of my neighbor?"

Both questions should be answered correctly.

The answer to the first is *"a dead man."* Some object to this story as too gruesome. Others say that children are not so sensitive to such things as we think. Aside from that question it would seem that the

picture is hardly familiar enough in America to make the answer certain. A substitute had better be found.

There are no tests for ages thirteen or fourteen.

XV. 1. Use same pictures as in III 4 and VII 2. The test is credited in XV, if subject "*interprets*" the feeling of the picture—usually expressed by some word of sympathy, fear, sorrow, joy or other feeling.

XV. 2. Interchange the hands of a clock for (1) the hour 6.20 and (2) 2.56. (Child must not see a watch or clock. It is a test of imaging power.) We say to the child, "Can you think how the clock looks when it is twenty minutes past six (four minutes before three)? Well, now tell me what time the clock would show if I changed the hands, putting the long hand where the short hand is and short hand where the long hand is?"

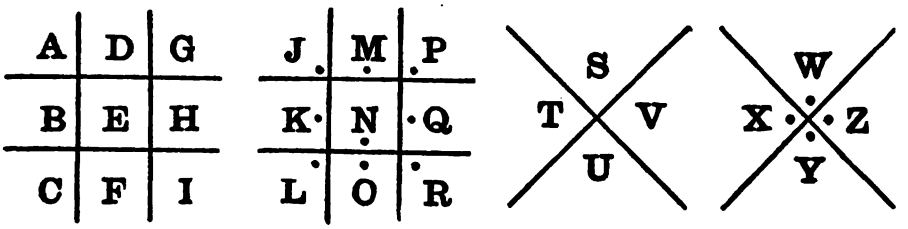
XV. 3. This test was suggested by Dr. William Healy, of Chicago. It was used by the Southern army in the Civil War.

The diagrams (Fig. 32) are to be constructed while the child gives close attention. He notes the arrangement of the letters, in alphabetical order vertically in first and second, and counter-clockwise in the third and fourth diagram. Two and four differ from one and three in having a dot in each section. Once knowing the scheme, the letters may be left out and a cipher dispatch written by using for each letter the part of the diagram in which the letter is placed in the key. For example, "war" would be written

Having made it perfectly clear, remove the key and have the child write on back of record sheet, "Caught a spy," in this code. In crediting allow one error. Every wrong or incomplete symbol is an error.

It should be remembered that this is to be very carefully explained to the child. He is allowed to look at the diagrams, and it should be illustrated, but after the test begins the child should not draw the diagrams for himself. He should work out the Code simply from memorizing. He may count up on his fingers and find out where the letter would be, but he must not write down the diagram.

FIG. 32



XV. 4. Ask the child to write the opposites of the following words: (1) good, (2) outside, (3) quick, (4) tall, (5) big, (6) loud, (7) white,

(8) light, (9) happy, (10) false, (11) like, (12) rich, (13) sick, (14) glad, (15) thin, (16) empty, (17) war, (18) many, (19) above, (20) friend.

Illustrate. One may say, "Tell me just exactly what this word does *not* mean," or "If a child is not good, what is he?" But this latter should not be repeated with each word, only once or twice as illustrations; then the child should give the opposites after that. If he is unable to do this, his very lack of comprehension is sufficient evidence that he cannot pass the test.

Besides the obvious answers, the following are accepted as right or half right:

(2) In or indoors (half); (3) lazy or slowly (half); (4) little or low (half); (5) short (half); (6) soft or low (right), whisper (half); (9) sorry or sorrow (half); (10) right or truth (half); (11) dislike, unlike, or hate (right); (13) healthy (right); (14) mad (right); (15) broad (half); (16) filled (right); (18) none (right); (19) under (right).

It is best to have the words printed on a slip of paper in vertical column, with space for child to write the "opposite" at the right.

The equivalent of 17 correct answers must be given.

Adult.[1]—1. CUTTING OUT.

Get the child's attention and let him see you fold a sheet of paper in four. Then with the scissors cut a small triangle from one edge—the edge which does not open. Ask him to draw a picture of the paper as it will look when unfolded. Do not unfold or allow another sheet to be folded. It is a difficult test. If a child does it the first time always ask him if he has seen it before.

2. THE REVERSED TRIANGLE.

Cut a visiting card along the diagonal. Ask the child to describe the resulting shape if one of the triangles was turned about and placed so that its short leg was on the other hypotenuse and its right angle at the smaller of the two acute angles.

3. DIFFERENCES.

Ask the difference between
Pleasure and honor.
Evolution and revolution.
Event and advent.
Poverty and misery.
Pride and pretention.

4. DIFFERENCE BETWEEN PRESIDENT OF A REPUBLIC AND A KING.

Say to the subject: "There are three differences between the President of a Republic and a King. What are they?"

The answer should contain the three ideas, Royalty is (1) hereditary, (2) lasts for life, and (3) the monarch has extended powers. The President is (1) elected, (2) for a definite time, and (3) his powers are usually less extensive than those of a king.

[1]Binet explains that the word adult is not to be understood literally. It can only mean "over fifteen years."

5. GIVES SENSE OF A SELECTION READ TO HIM.

Explain to the subject that you are about to read a selection to him, and that then you will ask him to tell you the substance of what you have read. He should give close attention.

Read slowly, in a clear voice and with expression, the following:

"One hears very different judgments on the value of life. Some say it is good, others say it is bad. It would be more correct to say that it is mediocre; because on the one hand it brings us less happiness than we want, while on the other hand, the misfortunes it brings are less than others wish for us. It is the mediocrity of life that makes it endurable; or, still more, that keeps it from being positively unjust."

It is correct if the subject gives the central thought in his own words, *e. g.*, "Life is neither good nor bad, but mediocre, because it is inferior to what we wish and not as bad as others wish for us."

The tests for "XV" and "adult" are new; and we shall be glad to receive any comments, or the results of any use of them. We have concluded that adult 1 and 2 test special traits rather than universal, *e. g.*, we found in a mixed group of educators and scientists, six out of twenty succeeded with No. 1. In another group, psychologists, twelve out of eighteen succeeded.

The great need just now is to get suitable tests up to age twenty. Perhaps there are no better ones than the tests of experience, and we may some day conclude that the boy or girl who has had an opportunity, and has not conformed to the canons of civilized society, is fundamentally defective in the qualities necessary to a useful citizen.

Alternative Questions.—It sometimes happens that one wishes to test a child a second time, a few weeks after an earlier test. There is some fear that he may have remembered the questions or have been coached in his answers. In such cases an alternative set of questions is convenient.

Many of the questions need no substitute, *e. g.*, One cannot "learn" to arrange the five weights. If he cannot do it no amount of coaching will help him.

In other cases possible variants are so obvious that we leave them to the user. However, it is not always as easy as it looks and he must be very careful or he will introduce changes seemingly small, yet which either change the difficulty radically or change the test utterly.

The following suggestions may prove helpful:

V. 3. Repeat "Little Mary likes to play with her dolls."
VI. 2. Define spoon, bed, drum, cow, father.
VI. 4. Show left hand, right ear.
VIII. 1. Difference between horse and cow, stone and egg, grass and tree.
VIII. 3. Name days of week backward. Allow more time.
IX. 4. Give months backward. Allow more time.
X. 2. Use design upside down or turned at 90 degrees.

X. 4. Comprehension. Use any of the following:

1. What ought one to do when he is sleepy?
2. When he is cold?
3. When he sees that it is raining just as he is about to go for a walk?
4. When one is tired and a long way from home?
5. Why is it necessary to save one's money and not spend it all?
6. What ought one to do when he has received punishment that he did not deserve?
7. What should one do to get a watch that he wants at the store?
8. What should one do when someone has offended him and comes and asks pardon?
9. What happens when two persons discuss a question without understanding the words?
10. What should you do when a person always contradicts you, no matter what you say?
11. Why is it better to persevere in what one has begun than to give it up to try something new?
12. Why should one not taunt a person of the service one has done him?
13. What ought one to do who has done an irreparable wrong?

X. 5. Use the words *snow, play, sled.*

XI. 1. Use any of the following:

Do you see any absurdity in the following?

1. I like the end slices of bread. I gave the girl a whole loaf of bread and told her to bring me the two end slices. I afterward found that she had sliced the entire loaf. I asked her why she did this. She said, "How could I get the second end piece unless I did?"
2. A man asked a boy where Mr. Smith lived, he said, "The first house you come to is a barn and the next is a haystack. The next is Mr. Smith's."
3. A man said to his friend, "May you live to eat the chickens that scratch sand on your grave."
4. A man came to see Professor Johnstone; Professor Johnstone was not at home. I asked him his name. He said, "Oh, it is not necessary to leave my name; Professor Johnstone knows me."
5. A gentleman fell from his carriage and broke his neck, but received no further damage.
6. I received a letter from a friend in which he said, "If you don't get this letter just let me know and I'll write again."

7. I read in a paper that they fired two shots at a man. The first shot killed him, but the second didn't.
8. The judge said to the prisoner, "You are to be hanged, and I hope it will be a warning to you."

XI. 4. Rhymes use *man, toy, cold.*

XI. 5. DAY—IT—WE—PICNIC—THE—OUR—RAINED—HAD.
IF—ASKED—BALL—MY—HAVE—WE—MOTHER—PLAY—I—MAY.
A—MAKES—BOY—GOOD—HIS—HAPPY—MOTHER.

XII. 2. Defines *truth, mercy, pity.*

XII. 3. Repeat, "Mary is often praised for her very nice, neat work. She is always a good little girl, and likes to sew."

XII. 5. (*a*) A man walking in the woods began to be worried. He looked to right and left. He walked back and forth. He climbed a tall tree.

"What was the matter?" The answer is, of course, he lost his way.

(*b*) I saw a crowd going along the street. They were all dressed up and each had a basket or a bundle.

"Where were they going?" Answer, a picnic or excursion.

XV. 3. The Code may be easily changed by changing the arrangement of the letters from vertical to horizontal, counter-clockwise to clockwise, etc.

XV. 4. Other lists may be made up.

Some may desire to use the reading test, although Binet omits it from the new list.

The following selection is a little easier than the old one and we suggest it as a nine-year test. In our Vineland study the reading was passed at eight years in the ratio of forty-nine—thirty-three and at nine years in the ratio of forty-eight—seven.

NEW YORK, JUNE 5

A big flood at Cape May last week swept away five boats full of fish. A little boy, the son of a fisherman, was carried out to sea.

While trying to save him a man in a row boat was washed overboard and nearly drowned. The child was saved.

Such are the tests. In practice the examination should be conducted in a quiet place, the child being taken alone and as free from distractions as possible. The examination should not and need not last long enough to fatigue the child.

Begin with the tests corresponding to the age of the child or below according as the child seems average or dull.

It is very desirable, when feasible, to have an assistant who records *verbatim* everything that the child says as well as makes notes on what he does during the examination. When this is impossible the examiner must keep his own notes, but care should be had that they be made

as rapidly as possible, consistent with accuracy, so as not to keep the child waiting. This spoils the game. As said above, constantly encourage the child; continually tell him he is doing splendidly.

While examining the child forget all your preconceived ideas. Regard him as an unknown quantity, an x which is to be determined.

Finally, these tests of Binet and Simon, while they seem to have been worked out with great care and are the result of large clinical experience so that they seem to be almost mathematically exact, yet they must be used with judgment and intelligence.

PRINCIPLES OF TRAINING

Having determined a child's mentality in accordance with this scale, we know where to begin his training. It is clear that a rational method for educational treatment of the feeble-minded must take into account these two factors, his condition of mental development at the time the treatment begins and the cause of this condition. Suppose we are considering a child of eight and we test him by the Binet Scale and find him to be five. Now if his condition is due to an accident, it is quite possible that he may develop quite well up to a higher age. It is not likely that he will ever be normal but he may become a high-grade moron. On the other hand, if it is hereditary, then it is quite possible that he may not develop much beyond his present status; and thirdly, if he belongs to what we call the Mongolian type, a condition due to a peculiar physical or mental condition of the mother during pregnancy, then we know almost certainly that he will never go beyond five or seven years of development.

It would seem that nothing could be more evident than the fact that our educational treatment should be adapted to the nature of the being to be educated, and yet we have never recognized that even in the education of normal children. We have assumed that they were all alike and that practically the same treatment must fit all. We are beginning to recognize that this is not the case. No more is it true of the mental defective. It is undoubtedly true that they differ among themselves quite as much as they differ from normal people and, therefore, the kind of treatment, when it comes to details, will vary with each individual child.

As said above, we do not yet know enough about the conditions, to state definitely what kind of treatment we ought to prescribe. We do not know whether a case of mental defect due to an accident is capable of different education from one that results from a toxic influence or from one that is the result of heredity. It is entirely probable that some day we will know enough about these cases to be able to diagnose very accurately and determine that a particular child shall be trained along such and such lines because he has still such and such parts of his brain or mental functions intact, while another child cannot do that because those are the very functions or localities that are destroyed.

In the same way when we come to the great group of hereditary defects, we must know the ancestry of the child and the kind of mentality that he has inherited in order to know how to adapt ourselves in detail to his special need. To use a very familiar example, we have only to consider the training of dogs. Everyone familiar with breeds of dogs, knows that it is impossible to train a bull dog to point, or others to become good house dogs, or good watch dogs or good shepherd dogs. For the particular purpose that we have in mind, we must select the right breed; and the breed that happens to come to us, we must train in accordance with the innate capacity, and we waste our energies if we attempt anything else.

In a similar way even defective children have undoubtedly inherited very different capacities and consequently are capable of very different training. That is a matter of simple observation in all institutions for the feeble-minded and it follows that it is exceedingly important for us to know the ancestry, to know the peculiar traits of the different branches and so far as possible, which of those traits have been inherited by our particular subject. We can then adapt our training and specialize in a way most profitable for the individual and for ourselves.

All this, however, relates to the finer and more detailed and specialized training and depends, it must be confessed, to a very large extent upon data not yet obtained. Yet the results of studies, that are now going on, lead us to believe, that in the very near future, we may have these data before us and be able to carry on our training under a much more rational system.

Demarcation between Defective and Normal Mind.—At present, however, we have not even caught up in practice to what we actually know of the condition of these children. In considering the educational treatment of these defectives, we must first recognize a main line of demarcation between the defective and the normal mind and that is, that even the highest grade defectives are incapable of abstract thinking to any important degree. This is a fundamental point in our consideration and deserves some discussion.

Memory.—It is indeed true that surprisingly few people who have had to do with the feeble-minded have recognized the truth of the foregoing fact. This comes probably from the obtrusion, into the problem, of the element of memory, and from our failure to recognize it as a disturbing element. Memory in these children, especially the high-grade defective, is often excellent, often equal to, and sometimes the superior of, the memory of the average normal person. The result of this is that they pick up a great deal of language, a great many words, which they use, not intelligently, but as they have heard others use them. The result is they often use them with apparent correctness, so that we come to give them credit for understanding what, in reality, they do not comprehend. Every observer will recognize this as a characteristic of childhood. Children continually pick up words which they use in a way that simulates comprehension and yet we easily find that they do not understand their significance. The extent to which

this may go cannot be shown from a normal child because he very quickly grows out of the age in which he does this and he learns the intelligent use of words before we have a chance to see to what extent he could develop a meaningless vocabulary. In other words, he has become old enough and intelligent enough to understand.

Language.—The same thing holds of action as well as of language. These children may be trained to do rather complex things, and having learned how to do them, they remember and are able to carry out their line of action very successfully. We, seeing only the end product, conclude that it involves a great deal of thought and that a person who can do such things must have the power of abstract thinking. The fallacy is exactly the same as is involved in the popular discussions of animal thinking and reasoning—as the animal psychologists have shown us. We say, because a cat can jump and reach the latch and open the door, she must have thought it out and, therefore, has intelligence. But it has been shown clearly that this was, in the beginning, only a hit-or-miss experience, the result of an inborn impulse to jump and scratch and climb until one motion happened to be successful and the cat thus came to learn the particular action in this way. It is exactly the same with the defective child. He learns to use language in what seems like an intelligent way and can do things that seem to involve intelligence and yet he has no power of abstract thought and what he says or does is merely the result of his good memory or his long training.

That this is true is shown repeatedly by tests, either intentional or unintentional, which come to the child. We can test it in the laboratory at will. It is tested in every day life every time the conditions are varied from those with which the child is familiar; or when he is placed in a new situation with which he has had no specific experience but for which his general experience ought to be sufficient to enable him to think out the solution. We find in those cases that he fails utterly.

Imagination in Defectives and Normals.—The situation is best understood from a consideration of the psychological process in which we see most clearly the difference between defectives and normals. This is the imagination.

There are two kinds of imagination, technically called the reproductive and the constructive or creative.

Reproductive Imagination.—Reproductive imagination is that process by which one calls to mind the image of something that has previously been perceived. If it is recognized or felt as having been perceived before, then it constitutes memory, otherwise what is more commonly termed imagination or imaging. This power is possessed by defectives as well as normals. A defective child equally with the normal may call up the image of a house, a horse or an object that he has sometime seen. He may know that he has seen it, in which case it is a memory—and the memory of defectives, in this particular, is often as good as that of normals.

Constructive Imagination.—But this kind of imagination does not carry very far. There is another, a higher, and more important kind which underlies all the higher thought processes and a higher degree of intelligence. This is the "constructive" or "creative" imagination. It is that process by which we weave together previous images to make a new, a complex image. It is this which lies at the base of judgment and it is good judgment which enables the normal individual to live his life successfully.

Let us take an illustration from one of the questions in the Binet Scale, already explained.

"A man walking in the park, suddenly stopped, terrified, runs to the nearest police station and reports that he has seen hanging from the limb of a tree ——— what?"

The normal individual images all of this. He sees the man in his terror. He sees him running to the police station; he sees him telling his story in a frightened manner to the police officer and he constructs out of all this the image of something that fits in with those other images, namely, a dead body hanging from the limb of a tree. He may never have seen a dead body hanging from the limb of a tree, nevertheless, he is able to create that picture and make it fit with the other images that have come to his mind.

The mental defective on the contrary is usually incapable of answering this test. He may very probably have the different images as the story is related. He sees the man walking in the park perhaps. He sees the terrified look on his face; he sees him running; he sees the police station, but when asked what he saw hanging from the limb, he says a "leaf." He is unable to put all those images together and construct a new picture which would be the only rational answer in that situation.

In this, lies a fundamental difference between the normal and the defective. The latter does not have the power of *creative* imagination. This is the explanation of the fact so often mentioned in connection with the feeble-minded that they are incapable of adapting themselves to a new situation. A new situation involves creative imagination, and not having this, they are utterly at a loss as to what to do. The result is that they act as we say, foolishly, that is, without judgment or common-sense. This incapacity for creative imagination must be taken into account in all consideration of methods in the educational treatment of the feeble-minded.

All of this is, of course, intelligible from what we know of the brain growth and development. As already pointed out we know in a general way that when the brain has ceased its growth at a very early stage, we have the idiot; if it has gone farther in its development, we have the imbecile; if it has gone still farther and to a point where the difference between it and a fully developed normal brain cannot be seen with the naked eye or hardly with the microscope, we have our high-grade defective, the moron.

Now there are many reasons to believe that what has happened

here is an arrest previous to the development of those association fibers, the functioning of which is essential to abstract thought. Sensory centres are all developed; motor centres are developed; a good many connections between these, are developed; but that large mass of nerve material which makes up what we call the association centres or association fibers may be in a condition in which it is not functioning. Whether this is due to absence of medullation or to the incomplete development of the cell bodies or to disturbances of nutrition of that part, no one has yet shown. Any of these may be ample cause for what we find. But there is much reason to believe that some such condition as that suggested is at the basis of the child's inability to use abstract thought.

Importance of Training in the Concrete.—We, therefore, see how useless it is to attempt any method of training which involves abstraction, and how on the other hand it is profoundly wise to confine ourselves to the concrete and to that kind of action which involves only the simpler processes.

Now this strikes at the very root and heart of a method of training which is still somewhat in vogue even in institutions for the feeble-minded and almost universal in the public schools in the training of those children who are placed in special or "ungraded" classes. These children are almost always feeble-minded children, children who will never be able to take care of themselves in the world and who really are incapable of abstract thinking. This training to which we refer is the instruction in reading, writing, and numbers. The parents and the public in general still insist that this instruction shall be given partly from a mistaken belief that these children are not mentally defective and partly from the belief that training in anything, whether it is comprehended or not, develops the mind. And since mind training is the thing most needed in defective children, the more of these abstractions that can be given them, the more surely are they being trained aright. The erroneousness of this has not yet dawned upon the minds of any except those who have given most attention to it. Furthermore, few people realize that reading, writing, and counting are abstractions. Words either written or spoken are mere symbols for reality. They are abstractions. Anyone who has studied a foreign language is perfectly familiar with this. Anyone who does not realize it, has only to recall how many things there are in his own experience which he can do, but cannot describe intelligently either orally or in writing. In the concrete experience, he has absolute control, but with the abstractions, the explanation in terms of spoken or written words, he finds great difficulty. Or, once more, one has only to recall how many times one reads something which he thinks he understands, but when he attempts to put it into practice, he finds that he is frequently incapable of doing so. All of which means that the abstractions are difficult, even for us adults with all our experience. All training of mental defectives must, therefore, be concrete.

There are two groups of activities: (1) A training in the ability to

do things which shall either give the individual happiness in the doing or give him a result which shall be of value to him in making a living, and (2) a training in the simplest habits of conduct. The former of these is for the highest grades of our defectives and the latter for the lowest.

Training of Low-grade Defectives.—To begin with the lowest first, we recognize that in idiots only the simplest reactions are possible. The sensory centres are more or less disturbed, the motor centres likewise and especially the connection between the two. The result is that these children learn with difficulty, and after much patient effort on the part of the teacher, those things which the normal child learns readily and without being taught, and so unconsciously that he never realizes that he ever learned them and often imagines that he was born with him. In these cases, training consists in putting together the two things that must be associated by the child in a simple way and separated from other factors so that he can by no possibility escape making the association. It is well illustrated by the well-known method of Dr. Wilbur, following Seguin, who used to sit down with the low-grade child and with a heavy dumb-bell in the hand of the child and his own hand grasping both, pound upon the floor; repeating this until the child made a connection in his feeble mind between the sound and the jar and what he saw in his hand and the movement that he was making, so that he came to associate with the sight of the dumb-bell the noise that it would make, the jar that it would produce, etc. We can imagine some such lesson as that being almost the first use that the defective brain was ever put to.

But we need not go out of our way to hunt up curious and interesting things by which to train the child's mind. That has been the mistaken pedagogy of all past time, to believe that only those things trained the mind that were strange and unusual and outside of every-day life. On the contrary, we shall choose those things that are directly in the every-day life of the child. And this, because they are the most necessary and better than any other, because he can understand them. He must be trained, for instance, to make an association between the sight of certain articles which we call food, and certain movements for conveying that food to his mouth by a spoon or fork, until he comes to have that association fixed into a habit, so that instead of grabbing, animal-like with his hands and conveying whatever he can reach to his mouth, he has the habit of eating in a more civilized fashion. If in similar fashion he can be trained to make an association between certain sensations in the alimentary tract and the toilet, then a step is gained in this direction. With the lowest grade idiot, these are about all that can be obtained, and not always even these.

Training of Higher Grade Defectives.—As we come up the scale however, we find it possible to make certain other associative relationships which are more or less useful to the individual and this work may go on until the limit of capacity is reached, but always the method is repetition and repetition of the things that are to be associated in such a relationship that there can be no possibility of error, that the

things that we wish associated, are associated. And when these lessons are being taught, no exception should be allowed. This is a rule, of course, of normal pedagogy, but it is much more important with defectives, because a single exception breaks the chain and the associations being once broken, are very difficult to make again in the mind of the defective child.

Importance of Neuromuscular Coördination.—Among the most important elements of training, in all cases where it is needed, are what might be called associations between different motor activities, or in other terms, neuromuscular coördination. And here the same rule holds. Movements which normal children learn to do without ever knowing that they learned them, must be matters of long and painful education for the mental defective. So simple a coördination as the opposition of the thumb to each of the fingers, which everyone does without every having learned it, is arduous and difficult for the feeble-minded. There is almost an innumerable list of these simple coördinations that may be taught to defective children. The answer to the question, "What ones are to be taught?" must depend first upon their usefulness in the activities of life, or things that are likely later to be required of them; and, second, of those that may have some fascination or interest for the child, and may be embodied in certain simple games that they may play. Psychologically, one may say that these are all excellent exercises for training. In short, anything that involves the control over muscular activity and the coördinating of different muscles or of a group of muscles with a consciousness of them is of value in the training of such children. Under this head come all of the forms of physical training.

The Doing of Things.—This also leads to our next higher step in the education of these children, namely, in the doing of things. Doing involves the coördination of muscles and some system by which the coördination and control is developed must almost always precede any direct training in the thing itself. With normal children, this need does not appear to the same extent, because as fast as the muscles develop, there develops also a sufficient coördination and control, so that most any normal child can, for example, swing a hammer about as soon as he has the muscular power for it. Consequently, the more recent theory and practice taboos that long drill in planing a board or making a joint which used to be demanded by the methods in vogue, and plunges the child into his most interesting work of making a box, wagon, or whatever may be in his thought. But with the poorly developed and slow-moving mind of the defective this will not do. His musculature may be well developed, but without any coördination or control, he is unable to do the simplest things. Consequently, if we plunge him at once into the problem of making something, the whole idea seems to him so monstrous, so impossible, that discouragement faces him instantly. It is as though one said to the average man, "Here are some brushes and paint, paint me a portrait at once." Even if he began, discouragement would soon come.

Progressive Training.—With the defective, discouragement is always an imminent danger, and is one of the great sources of trouble and failure. Many a child is considered incapable of training because he will not undertake the tasks that are set before him for the reason that they discourage him at the outset. It is accordingly very necessary that we begin with such preliminary muscle training as he shall be capable of, and gradually develop larger and larger control until he is able to do what was set for him. For example, suppose we have a ten-year-old boy but who has only the mentality of a four-year-old child, and we set him to making a box, involving the driving of nails. The ten-year-old boy is large enough, has muscles enough to perform the task, but never having been trained in coördination, cannot hold a hammer, cannot hit the nail, and if he makes the attempt, he either spoils his work or hammers his fingers, with the result that after the first attempt with its consequences, he can never be induced to undertake such work. We might be inclined to say that he is too low grade. He has not mentality enough even to drive a nail. On the other hand, suppose we take this child, preferably in company with others, and with hammer in hand, and a wooden chopping block in front of each of them, and show them how to strike the block with the hammer, simply pounding or driving. The block is big enough so that he cannot fail to hit it, and one effort after another results in gradual control of the hammer until the block is struck nearly always in the same place and in proper form. This done as a few minutes' exercise every day, especially in company with other children is merely play, and yet it results after a few days, in the development that is needed. And then we may add the nails to the problem. The task now is to drive the nail into the block. These should at first be well started by the teacher and merely driven home by the child. In the same way, a closer coördination of muscles and of eye and hand are involved, so that in time, this comes to be done with considerable perfection. We may, perhaps, now be ready for the making of the box, at least that part of it which involves the driving of the nails.

This method should be carried through all lines of manual and industrial training, always beginning with the task which is simple enough for the defective child to master, and leading from the simple to the more complex as far as his capacity will carry him. And this must be taken into all departments of training and of exercise, not only of muscular control, but recognition of colors, form, and all kinds of sense training.

One thing must not be lost sight of. When we give the normal boy hammer, nails, and boards to make a box, and he finds that he has to stop and practice a little in driving nails, he continually has before him the ideal end and purpose of his work, namely, the finished box. That spurs him on and keeps up his interest through the temporary drudgery of learning to drive a nail. But when we start the mental defective on this process of hammering at random or of driving the nail, he does not see the finished box at the end. Indeed, we perhaps

have not shown it to him, but even if we had, it is so far away that it does not serve the purpose of an incentive. Now this loss of an incentive must be supplied.

The feeble-minded boy will not strike a block with a hammer continuosuly until he has arrived at the point where he holds the hammer right and hits the block squarely; he will not keep driving nails until he can hit the nail on the head and drive it squarely into the wood, unless we supply some motive for his so doing.

Use of Rhythm in Training.—One of the means and perhaps the best means of supplying this incentive is through rhythm. It is well known that rhythm appeals strongly to these children. We therefore do not attempt to set the child by himself to hammering and driving nails until he shall have learned the art, but we make the matter one of interest and pleasure, and a game to him by giving him some companions; and instead of one child, we have a dozen. These all have hammers and blocks, and are all pounding together. The rhythmic noise and movement is itself a sufficient pleasure, and an incentive to continue to work, and while he is only keeping up his share of the game, he is actually learning to hold the hammer and to drive the nail.

Necessity of Incentive.—This is an illustration of a principle that must never be forgotten in the treatment of the feeble-minded. If that which serves as the natural incentive to the normal child cannot apply in the case of the defective, then we must supply something else. There must always be an incentive, an aim, a purpose, a source of interest, and often, as here, rhythmic movement, concerted action, will be found to be all-sufficient. In other words, just as we say the normal child in many of his games is really developing himself and learning things that will be of use to him later in life, so the defective child in these simple games is really learning the thing that he will need a little later. The difference is that the wise trainer knows that he must supply the incentive for the defective child in many of those cases where no artificial incentive is needed for the normal child, because he can see farther, or, in other words, because he has creative imagination.

This is the method used by Dr. Fernald at Waverly, developed from Seguin. It is based on the psychological principle that since the association tracts are not developed, the sensory and motor centres do not get the indirect stimulation or internal stimulation that comes to the normal brain. For the same reason the defective has not the interest in things that the normal has, hence but little incentive to use his brain. Consequently in the case of the defective the parts of his brain that control these various sense activities are undeveloped, and begin to atrophy or waste away. This is the remedy, by placing objects of sense before him under such circumstances that he will be compelled to use his brain on the subject, and in such a way also that he will learn to discriminate between sensations similar, but differing slightly.

The earlier theories that the training in one sense sharpens the neighboring sense organs, receives little or no recognition from modern

psychologists. But the value of this sense training for each sense organ and corresponding brain area is very great. And its benefits are not confined to the direct stimulation of the organ itself, but extend to that more subtle mental process which we call attention. For example, a child whose brain is so sluggish that he would never in the ordinary course of events learn to distinguish red from pink, will, under this careful training, be able to distinguish not only these but very much closer shades and tints of all the colors. In these, as in other senses, the purpose should not be at first the learning of names. It matters not whether the child knows red and pink by name, if he is able to distinguish red from pink, and being shown, for example, a red strip, is able to pick out all that look like it, without putting it with any pink ones. In due time, as he develops to that point, the names also may be learned and associated with their proper colors. In similar way the ear may be trained to discriminate tones and noises. This is, for some unknown reason, usually not difficult for defective children, for their ears seem to be well developed. They are, for example, very fond of music, and very often able to learn to play musical instruments with considerable skill, sometimes with remarkable skill. But this only means that this sense training work in this realm may be carried farther down the grade, and that lower grade children may learn to discriminate a cow bell from a dinner bell, a whistle from an automobile horn, and so on through the long list of noise and music-producing articles.

In this case the names are almost essential in order to play the games successfully. A child is shown the object, hears the sound that it produces, and is told the name. When some of these names and sounds have been learned, then the object may be sounded out of sight of the child and he required to tell the name.

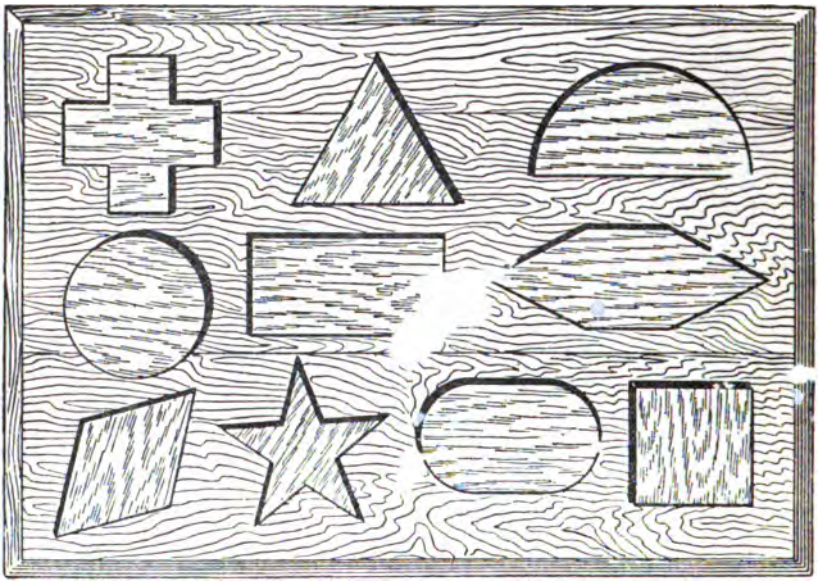
In the case of taste and smell, it is again largely a matter of name, since the visual appearance is not often a means of discriminating the substance. In the case of smell, the substances are preserved in small bottles and the child allowed to smell first of one and then the other and name it from its odor, or he may be given, provided the odors are correctly chosen, one large bottle and asked to pick out of the group all that have a similar smell. In the case of taste, the substances are kept, preferably, in powdered form and a small bit is placed upon the tongue and the child asked to tell what it is. In this case, more than in the case of smell, it is often desirable during the experiment to keep the child from seeing what the substance looks like.

The sense of touch is trained in a similar way by providing objects (Fig. 33) that have all the different feels, rough and smooth, soft and hard, and so on through a long list of qualities. Tactual impressions are then built up in the child's mind as they are found in the various common objects. A great number of these objects are placed in a bag into which the child thrusts his hand and tells what he has found. It is then taken out to the light and verified by the eye.

This method seems to arouse dormant or undeveloped brain centres

for all of the senses, and the result seems to be an increased alertness and interest in things about him which may in turn be built up into a larger appreciation and an increased mentality, and lay the foundation for more important development later.

FIG. 33



The Vineland form board. The form board dates back to Seguin, but in a simple form. The Vineland form board is a slight modification of the one prepared by Dr. Norsworthy.

Training in Complicated Feeble-mindedness.—In the foregoing pages we have given an outline of methods of training that are applicable to what we may call simple feeble-mindedness, feeble-mindedness uncomplicated by any of the strong physical defects which sometimes occur. This feeble-mindedness, as we have said, is of varying degrees, and the extent of the training will depend upon the degree of defect.

We now come to take up as specific problems those particular cases in which some diseases or injury or peculiar physical condition is superimposed upon the natural feeble-mindedness in such a way as to give the chief importance to the physical rather than the mental. These cases are consequently often classified in accordance with these physical peculiarities, such as the diplegics, the hemiplegics, cretins, Mongolians, and, perhaps, most important of all, the epileptics. In all of this it cannot be too clearly borne in mind, as was said in the beginning of this chapter, that it is very desirable when possible to separate these two elements, what we have just called the simple feeble-mindedness from the superincumbent disease or injury. The case of epilepsy may well be taken as an illustration of what is meant.

PLATE IV

Fig. 1

On left, High-grade Imbecile, aged Thirteen Years; mentally, Six Years. On right, Microcephalic Imbecile, aged Nine Years; mentally, Three Years.

Fig. 2

Hemiplegic, aged Eleven Years.

(Courtesy of Dr. A. C. Rogers, Faribault, Minnesota.)

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PLATE V

Hydrocephalic Moron, aged Twenty-four Years; mentally, Ten Years.

NOT FOR LOAN

Epileptics.—There are apparently two distinct groups. There are feeble-minded persons upon whom epilepsy has been grafted with the result that the symptoms of the two are side by side, while, on the other hand, there are persons who were naturally of normal mentality, but suffered from epilepsy which has tended to blot out certain mental processes, with the result that they appear feeble-minded. It is not the place here to discuss the question whether these atter should be properly called feeble-minded, or not rather a form of insanity, or an unsoundness resulting from disease. But it is certain that for purposes of treatment, educational or otherwise, it is of the utmost necessity that we distinguish as far as possible these two varieties, and in any particular case we determine as closely as maybe whether it is a case of simple feeble-mindedness with epilepsy grafted onto it, or whether it is a case of apparent feeble-mindedness resulting from epilepsy in an otherwise normal person. Our treatment will be according to the findings. This is often most easily shown by reference to the ancestry, for while epilepsy like feeble-mindedness is hereditary, yet it is quite possible that the two do not show themselves in the same way, and may be differentiated by reference to the family tree.

Hemiplegics and Diplegics.—The same holds of hemiplegia and diplegia, although in not quite the same way, for the reason that these two diseases by themselves are not likely to produce mental defect unless occurring very early in life. In these cases then it becomes necessary to determine whether feeble-mindedness is the result of hemiplegia or diplegia, or whether the latter are grafted onto a naturally defective child. In either case the training and education that such a person receives will be directed toward correcting both defects, that is to say, the enfeebled mind must be trained as we have already seen is fitting for mental defectives, while for the hemiplegia and diplegia we have our usual muscular training and treatment, massage, manipulation, and the rest.

Ataxic Cases.—In the ataxic cases, we have a good example of a condition where the physical defect predominates over the mental. These cases are frequently very seriously incapacitated because of inability to control the muscles either of locomotion or of speech, whereas the mentality is usually fairly good; indeed it is always difficult to determine whether it may not be actually normal, but seemingly defective because of the child's inability to do the things he really wants to do. Anyone who has watched these children at play and noticed their persistence and determination, the way in which they hold to an effort to do something, cannot but be struck with the difference between them and the ordinary defective. In these cases the training is directed to the neuromuscular control and efforts to develop strength and power over those muscles that are involved. Fortunately the perseverance and determination on the part of the child is always a great help in these cases, so that they not infrequently acquire considerable ability of locomotion and oftentimes improve markedly in speech.

Hydrocephalus.—Hydrocephalus, on the other hand, is a disease with which little can be done. We have only to take the resulting mentality and do the best that is possible. The amount of defect varies much with the course and extent of the disease. An internal hydrocephalus which has developed fully so as to squeeze out the cortex until there are no convolutions left and comparatively few nerve fibers results, of course, in very low grade of intelligence. On the other hand, in a hydrocephalus which has been of short duration and early in life so that the skull has somewhat yielded to the pressure and the brain still has cortical areas, there may be left considerable brain substance and considerable development be possible. In these cases, so far as it is known, there is no difference in the treatment from that of simple feeble-mindedness.

Microcephalus.—Microcephalus, unlike hydrocephalus, is probably not a diseased condition, but simply an arrest of the growth of the brain, while it is still very small, resulting in the lack of development of those centres and fibers which are necessary to the higher mental processes. The result is that the mental condition is very definitely limited, and the training is confined to very narrow lines, but the method in these cases also is no different from that which we have described as belonging to the ordinary mental defect. Some years ago the theory was advanced that the microcephalics were cases where the skull had closed too soon, thus preventing the natural growth and expansion of the brain. In accordance with this theory operations of craniectomy were performed in several places, and the skull was opened in order to give the brain a chance to expand. It is hardly necessary to say that no result followed, and it was then seen that the skull had closed because the brain had ceased growing rather than the reverse.

It may be interesting to know that hydrocephalus is not incompatible with microcephalus. There is in the collection of the Vineland Training School the brain of a child that was throughout life considered to be a microcephalic idiot of unusually low grade. At the autopsy it was discovered that he was also a victim of hydrocephalus, there being in the right hemisphere no cortex visible posterior to the fissure of Rolando and on the left side only a little. He apparently saw and heard and could make known some of his wants, although he was closely drawn up with spastic paralysis, and had no power whatever over his movements.

Mongolians.—The Mongolian imbecile is a special type, and requires somewhat special treatment. The Mongolian is characterized first by that which has given him his name, the peculiar slant of the eyes, and a cast of countenance which is frequently strongly suggestive of the Mongolian races. In addition to this peculiarity, they most always have short, stubby fingers, frequently a peculiar leathery skin, and also often show a much furrowed tongue. The head is also of peculiar shape, usually noticeably lacking of the protuberance at the back, as though the neck was continuous straight up. This type is at once

PLATE VI

Erma. Front view.

Erma. Side view.

Mary. Front view.

Mary. Side view.

Microcephalic Twins, aged Eight Years.

(Courtesy of Dr. A. C. Rogers, Faribault, Minnesota.)

PLATE VII

Fig. 1

Microcephalic Idiot, aged Seventeen Years. Front view.

Fig. 2

The same as Fig. 1. Profile.

(Courtesy of Dr. A. C. Rogers, Faribault, Minnesota.)

Fig. 3

Mongolian Imbecile, aged Six Years; mentality, Two Years.

Fig. 4

Mongolian Imbecile, aged Thirty-two Years.

(Courtesy of Dr. A. C. Rogers, Faribault, Minn.)

the most easily recognized, and also the most is known about it. It is not an hereditary case, but is congenital, being due to a peculiar condition of the mother, whereby she is unable to bring the developing child to complete maturity. The cause may be of various kinds. In 53 per cent. of the cases, the Mongolian imbecile is the last born, oftentimes in a large family, which would seem to be indicative of a worn-out reproductive power. In other cases, it can be traced to a severe shock, or some injury to the mother. In practically all of the cases, the heredity is good and the Mongolian comes from our best families. Most of these children develop the mentality of a normal child of about five years. Rarely they have become somewhat better than that, and even have reached the seven-year stage, almost never beyond, and very rarely fall short of four. This shows at once their limitation and the fact that reading and writing and counting are not for them. It is true that by dint of great perseverance they are sometimes taught to read and write a little, but never to make any great use of it. Neither do they, as a rule, become very skilful in the manual line, as other feeble-minded children may. If not understood, they are very apt to be morose and stubborn, mischievous and troublesome. But when their condition is recognized and they are managed by people who understand them, and whose effort is to make them happy, they may be made into very pleasant and agreeable children. They are naturally extremely affectionate.

Their blood pressure is low, and circulation poor, consequently they suffer a great deal from cold. A slight lowering of the temperature may produce in them symptoms that are identical with those of frost-bite. Hence in cold weather they must be very warmly dressed and carefully protected. There is little to be done for them, except to train them in routine housework or simple errands. They have little power of attention, and will not stick to any one thing long. They are apt to have defective speech, but with this little can be done, as they lack the mentality to improve by instruction.

Their eyes are also apt to very defective with considerable strabismus, and nystagmus. Glasses may sometimes be used to advantage, although many of them will not wear glasses, tearing them off and throwing them away as fast as they can be fitted.

Here, as elsewhere, in the care of the feeble-minded, happiness is the first rule. If the caretaker devotes himself to making them happy, they may become very affectionate, agreeable little children. No matter what may be their length of life, they will never be unlike children of from four to seven years of age.

As a rule, they are unhappy in their homes, because they are not understood, and do not find any people like themselves. Normal children are apt to annoy them by teasing in one way or another. In a home for such children, where they are among children like themselves, they quickly adapt themselves to their surroundings and become happy and contented.

Many physicians prescribe thyroid gland for Mongolians, either

because they mistake the symptoms for cretinism, or because they do not know that thyroid has no effect upon Mongolianism. This fact has been recognized in literature for some time, and yet reports are continually received from parents, saying that their child has been given thyroid by the physician, and that he has wonderfully improved. So persistent were these reports that at Vineland it was decided to test the matter again. Accordingly 14 Mongolians were placed on thyroid treatment for an entire year. They were weighed and measured regularly and persistently, before, during, and after this period. The result was a decided negative, there being not the slightest evidence of any improvement.

Cretinism.—Closely allied in some respects to mongolism, at least, frequently confused with it, is cretinism. Upon close observation, there is no similarity between mongolism and cretinism. The great characteristic of the cretin is stunted growth, so that we often find a person of twenty years or older having the stature and appearance of a child of five or six. As is well known, this is due either to the absence or to the non-functioning of the thyroid gland, and it has long been known that if the thyroid gland of the sheep is administered, the symptoms of this disease are ameliorated, and the child approaches normality. If the treatment is begun early enough, the physical organism grows to a nearly normal height, and some claim that the mentality also improves, and in some cases the child becomes practically normal. In most cases, however, this does not happen, and even the early feeding of the thyroid only results in a partial recovery, and we generally have a type marked by at least a certain amount of defective stature, a dry, scaly skin, coarse, harsh hair, broad, thick, stumpy hands, prominent abdomen, dull and immobile expression, apathetic, and unobserving. The voice is often a striking characteristic, being a deep, guttural, harsh sound.

There is no special educational treatment for this type. Usually very little can be done for them. Sometimes they can be trained to a little manual work.

In connection with the thyroid treatment of cretins, it may be well to discuss the subject of glandular extracts in the treatment of feeble-mindedness. Experiments have been carried on at Vineland with pituitary extract. This was fed to Mongolians. The result was not significant. One child seemed to improve somewhat, but it is not clear that this was due to the gland. In these experiments only the infundibular portion of the gland was used.

The next experiment was a mixture of thyroid and pituitary. This likewise has produced no results that are sufficiently marked to be of value.

In the fall of 1911, Drs. Dana and Berkeley, of New York, carried on an experiment at Vineland under the management of the Research Department. Twenty children were treated. The pineal gland extract was administered by mouth daily. Four out of the twenty showed marked improvement, the rest nothing worthy of note.

Training in Speech.—One of the very important lines of training for defective children is in speech. Speech defects are very common, and range in degree all the way from very slight inaccuracy down to absolute alalia. The conditions of the problem are very little understood, and although a great deal of effort is frequently put forth in the training of these children, most of it is without any intelligent comprehension of what ought to be done. Some of the defects are apparently hereditary. In other cases, the lack of good speech is a mere laziness which is characteristic of feeble-mindedness itself. The child does not speak plainly because it takes a little more effort to speek plainly than it does to speak in his slovenly way. In such cases, it is undoubtedly true that much could have been done if the child had been taken in time, but when he has been allowed to fall into careless habits, it is exceedingly difficult to break these habits. As we go down the scale of defect from the higher to the lower, we come to a point where the child does not speak because he has nothing to say, having no mentality, no ideas, there is no reason why he should talk. There are undoubtedly some cases in which the inability to talk is the result of never having learned the proper adjustment of the vocal organs. Here, of course, we have the cases *par excellence* for training, but we need some more sure way of sizing up the case and discovering those that are amenable to training, and separating them from those that are not. In the Hilfsschulen, in Germany, a great deal of stress is laid on speech training and elaborate methods have been devised, very largely by imitation by means of the mirror, so that the child can see not only his own facial response to his efforts, but those of his teacher. However, the results here are not, as a rule, brilliantly satisfactory.

Psychologically the problem is a very complicated one. While it is easily seen that speech is very important for thought and intelligence, and the very training of the vocal organs and speech centres of the brain means a great deal for intelligence, nevertheless there is serious danger of arguing in a circle here, because if the brain itself is actually deficient in those cells or fibers which are involved, then there is no possibility of developing the power of speech. Here again we need much more information in order to be able to size up the case with sufficient accuracy so that we can say: This is a case where certain methods of training would be valuable, whereas the other is a case where nothing can be done because the conditions are unsuitable.

Here predominantly, that is true which holds in all the educational treatment of the feeble-minded, that they learn more from each other than in any other way. In consequence of this it is always desirable for feeble-minded children to be grouped together by grades, those of about the same mentality being placed in the same group. Such groups become great incentives to each other to speak, so that if the child has the power at all, it is very apt to be drawn out through his play and association with other children, and the need and strong desire to make his wants known and carry on conversation with his

associates. Cases sometimes occur where children who have the reputation of never uttering a word, occasionally break out with two or three words or a sentence, and then become mute again for years. What is the actual explanation of such cases no one has ventured to say.

It is certainly true that speech should be developed to the highest point possible. On the other hand, some means of determining what children are amenable to speech training should be discovered so that time should not be wasted attempting the impossible. And whatever is done should be done early, before the child has formed bad habits of speech or of not speaking.

Sex Instinct and Feeble-mindedness.—Masturbation.—The habit of masturbation is all but universal among the feeble-minded, both males and females, and much thought and study has been given to methods of treatment for this unfortunate practice. But it is easily seen that in the very nature of the case, it is almost hopeless. Almost all habits are hard to break, even for normal people with normal intelligence and will power, but given a being in whom there is a characteristic lack of will power, the overcoming of a habit once formed is exceedingly difficult. Such is the case here. Suggestion has been tried with the higher grades, and as long as an intelligent person can give the suggestions for a few minutes each day or twice a week, some result may be achieved. But as soon as that is given up, the subject immediately falls back, showing that he relied wholly upon the will of his teacher, and when that was withdrawn, not having any of his own, nothing is achieved. The only hope in this particular comes from an understanding of and appeal to the physical condition. Hard work through the day, so that when the child goes to bed, he is tired enough to go immediately to sleep, and sleep until it is time to arise in the morning, is the best solution yet discovered for this habit. Care may also be taken that the child does not have too warm clothing at night. Possibly also something is accomplished by insisting that he shall not lie on his back, though this can only be brought about through the watchfulness of a night attendant.

Sterilization of Mental Defectives.—The sex instinct is not unduly strong in mental defectives, but the lack of any power of control often makes it appear so. But when carefully segregated and proper methods of keeping the sexes apart are observed, there need be very little difficulty on this score. When not thus segregated, but mingling in society, they may often become victimized or excited by those of more normal intelligence. In order to protect society from the consequences of such a situation, it has been proposed that mental defectives should be sterilized.

Recent studies seem to indicate that there is no objection to this operation from the physical or the mental side, there being probably no appreciable change in either of these. On the moral side, the question is still under discussion, many claiming that a person thus rendered immune, would be a moral danger in the community both

from the spread of disease and the spread of debauchery. So far as the older form of asexualization is concerned, that of castration or ovariectomy, apparently all depends upon the age at which the operation is performed. If done early, no sex consciousness develops; but after once that has developed, and the person has had the normal sex sensations, the removal of the organ does not destroy the memory or the feeling. The newer form of the operation, vasectomy or salpingectomy, involves no destruction of the sexual appetite or power of gratification. The person is simply rendered incapable of procreation.

As a method of ultimately ridding the world of mental defectives, this does not hold out any very great hope. First, because society is unwilling, and will undoubtedly remain unwilling for many years to come, to practise this sufficiently extensively to help very materially in the solution of the problem; and secondly, because we now know from the laws of heredity that many normal persons, the children of defectives, may transmit the defect to their offspring, so that while no law could properly reach these persons, the propagation of defectives will continually go on. Nevertheless, it must be said that as society becomes more alive to the problem, it is possible that we may be willing to go much farther in the practice of this method of treating the mental defectives for the sake of the future race.

Direction of Deficiency.—A question of considerable importance in the educational treatment of the feeble-minded relates to the condition of their defective minds. Are they equally defective along all lines, or are they defective in special lines, as it were, while in other lines they are less defective or even remain normal? The latter is the popular conception, and one does find in the classes for defectives in the public schools, children who have shown that they can learn to read very well, but cannot do the first elements of number work, or *vice versa*, can do well with numbers, but have been unable to read. While there is little accurate data on this subject, it is nevertheless probable that the great majority of defectives are simply all-round dullards, with no specialities in which they excel. In other words, they are as we have come to regard them, cases of arrest in development, and have the mentality of a six-year-old child or a ten, or whatever the age at which their development has stopped. Indeed, it may be that we shall sometime discover that these other cases are very special as to cause as well as result. Indeed, it is now believed by our most experienced persons in the care of the feeble-minded, that the remarkable cases of "genius" so-called, found among them are really cases of psychoses rather than ordinary feeble-mindedness, that we have to do with forms of dementia præcox, or other psychoses of early onset. While it is not impossible that the brain and nervous system might develop irregularly, so that certain mental processes would come to a higher development than others, yet it must be considered that the loss of certain mental powers due to the ravages of disease is much more common, and is much more easily understood than the former condition.

The course of education in such cases will depend very largely upon

what are ultimately found to be the exact facts of the matter. If the irregular development of the mental powers is the result of lack of training along some lines, or lack of development of a part of the brain, it may be possible to a certain extent to restore or improve those processes that are inferior. If, on the other hand, it is a question of the destruction of some parts by disease, then, according to our clinical experience, there is no hope that we will be able to restore those parts of the brain, and hence restore the functions.

"Moral Imbeciles."—Another very puzzling problem in regard to education and social preparation of defectives, relates to a type of persons that used to be called "moral imbeciles," but which we today are rather inclined to call the "defective delinquent."

This is the boy or girl who seems to be normal so far as intelligence is concerned, who seems to have plenty of ability and shrewdness, and evening cunning, but who lacks moral sense, moral judgment, moral stamina, who lacks the ability to adapt himself to his environment and live a decent life in the society in which he is placed. This group comprises the wayward girl, the incorrigible boy, the ne'er-do-wells, for whom we have as yet found no satisfactory treatment. Whether these are cases due to defective education and defective discipline or not is uncertain. This has been the theory in the past, and such people when caught in misdemeanors have been punished by the law and sent to reform schools and penitentiaries with the idea of reforming and making useful citizens of them. This treatment has pretty largely failed, especially in those cases that were recognized as definitely moral imbecile or defective delinquent. It is probably true that these cases are somewhat mentally deficient, and there is not the normal intelligence that has been assumed. This may easily be the case, since in the past we have never recognized those defects of intelligence which our finer methods of examination are now able to detect.

But given this slight defect of intelligence, it is quite possible that the environment, even the home training and influence, has been such as to develop the undesirable qualities and such habits as to make it impossible for these people to get along in the world. If this is the case, then the problem would seem to be to recognize these defects as early as possible, and by special effort to train these people in right lines, and develop habits in them which will be sure to make them fit into their place in the world.

That this may be the true view of the case, receives some support from the experience with such persons in institutions for the feeble-minded. While many of them prove seriously disturbing factors in such institutions, and are almost never wholly trained and brought within orderly limits, and never brought to the point where they can go out and live a normal life, yet, on the other hand, many others are, through careful and systematic treatment, a firm discipline, the routine life, and regular habits, brought down to a position of happiness, comfort, and usefulness, and become really satisfactory members of this community of feeble-minded persons. This would seem to go

far toward indicating that had they had the right kind of treatment in the beginning, they might never have developed these undesirable traits. This does not indicate that they were not defective. They undoubtedly were just enough defective to be unable to function in the highly evolved society in which most of us live in these days.

Essentials for Successful Treatment.—Happiness of Patients.—The secret of success here as we have already said in connection with other types, seems to be in happiness, that we should treat these children not according to any preconceived notion, not insist upon giving them the training that we would like them to have, not demand that they shall some day fit into society at a level for which they have no capacity, but that we shall recognize their limitations, and shall be content to give them such training as will make them happy. When we make happiness our aim, and watch for that in them, and modify the treatment which does not make them happy, substituting for it such treatment as will make them so, we will probably find that the moral imbecile, the defective delinquent, and all the rest of the undesirable group will very largely disappear.

Most people, even imbeciles, do not destroy and overthrow that which is giving them immediate pleasure. Perhaps intelligence may be defined as ability to look for pleasure and happiness in the future. Perhaps degrees of intelligence may be marked by the distance ahead one is able to see and plan for his own happiness and welfare. If so, then we discover that the feeble-minded, so-called, are those who are unable to see even a short distance into the future, and consequently will destroy present conditions if they are unpleasant, even though they are the foundation of happiness in the future.

But even here, we would not find these children for the most part, destroying that which is at the very moment giving them pleasure and happiness. Therefore the mainspring of the work, the guiding star and goal of all our efforts, must be the desire to make these children happy.

Play.—Another important topic is play. We are recognizing now in our treatment of normal children that play has a tremendous role, and that many things are learned through play as they are learned in no other way. This is more than ever true of the mental defective. Indeed, so true is it, that to a very large extent their lives must be made lives of play. The things that they do must be games. The things they make must be playthings, and everything must be considered from the standpoint of giving them pleasure and happiness. It is true that after a time of this kind of training, they are able to do what they call work, and it really is work, and they take a certain pride in being able to do work like normal people. Nevertheless, even here, it will almost always be discovered that their power of endurance, their persistence, is vastly less than that of normal people, and while they like to work, they get tired quickly, and want to change off to play, so that even in these highest types, play again occupies a very large place.

Change of Program.—In accordance with this, it is the custom and almost the rule among those trainers of defectives who have experience, to change their program continually. Very few children are allowed to work at the same thing for a long time. They may have a half-hour at one thing and another half hour at another, or when they come to their work, they may be able to work a half day at farming or a half day in the laundry or in the shops, etc., but it must not be, as a rule, longer than that. Sometimes the very occupation itself has many phases, and continually changes for a considerable length of time. In such cases the child is naturally occupied longer. Farming for the boy who has the ability for it seems to furnish enough variety so that he gets along fairly well where the farm is small enough, so that he does not have to plow around the field for too many days.

This all comes back to the psychological problem of interest. James says a thing to be interesting must continually present new phases of itself. Things do not easily present new phases to the feeble-minded child. They must usually be new things, and the feeble-minded child's interest is a direct one and not indirect. As said above in popular terms, he is unable to look into the future and go through a good deal of drudgery now in order to get something pleasant a long way off. It must be pleasant immediately, or as is said, his interest is an immediate and not an associated one. Hence it is that his occupation and work must continually change, and if it is not of a character to change naturally, and bring new interest to him, then it must be changed for him. This is the secret of the care of the adult feeble-minded.

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CHAPTER V

DELINQUENCY AND CRIME[1] IN RELATION TO MENTAL DEFECT OR DISORDER

By WILLIAM HEALY, M.D.

INTRODUCTION

THE underlying consideration in our professional viewing of crime or delinquency is the fundamental fact that all conduct emanates from functioning of the central nervous system. Whether deliberately planned or the result of sudden impulse, whether done in the full glare of consciousness or in the twilight states of intoxication or mental disease, whether performed from the dictates of the most accredited moral motives or under the spur of hallucinations, all behavior is the motor expression of preëxisting psychoneural determinants. Conduct can be regarded as activity of the human body directly initiated through nerve energy, subject consequently to all the laws and limitations imposed by the fixed structure and possibilities of functioning of the central nervous system. Conduct is action which has to do with social relationships, but as far as its immediate antecedents in activities of brain cells are concerned it matters naught that one action or motor response has social values of a higher order and another has not. No more nor no less of a neural phenomenon is behind the epileptic in one of his whim-controlled states scribbling socially meaningless little words than behind his yielding to another impulse and stacking angle irons on the railroad track five minutes before "the flyer" arrives. The inane pleasantries of alcoholic intoxication result from the same cell poisoning as the brutalities of drunkenness. The summation of irritating nerve stimuli may result in neurasthenia or in murder.

The chain of causation of conduct frequently involves, of course, psychogenesis, and here morbid elements, discernible through the work of the medicopsychologists, may enter. Altogether there are many chances of conduct being profoundly affected by influences which come within the ken of the medical profession. In truth, ethics has closer relationship to the physiology and morbid functioning of

[1] The words "crime" and "delinquency" are used as overlapping and practically synonymous terms in this contribution. The latter has been much utilized for reference to antisocial and law-breaking acts of childhood and youth. Its application has spread naturally for the purpose of designating antisocial acts of adults when the old and severer word "crime" seemed undesirable. But all through, whether as applied to juveniles or adults, there is no logical or scientific basis for the distinction.

the central nervous system than most professors of the subject have dreamed.

For the purpose of treatment of the delinquent that shall be at all adequate in the prevention of recidivism, that is, the repetition of crime, the first step must necessarily be, as in other forms of rational therapy, to make a diagnosis of the underlying causative conditions. So frequently mental and physical factors in the individual may, by proper study, be perceived to be largely, if not entirely, at fault that it is clear that any mere punishment by fine or imprisonment, or any fixed reformatory routine offers comparatively little chance of achieving the results which are aimed at—namely, the deterring of the individual from further commission of offence. The diagnostician will readily find individuals whose physical and mental make-up is so deficient or so peculiar, or is so specially affected by certain excitements and irritations, that no permanent good to them nor to society can be expected to be derived from the legal procedure unless there be recognition and treatment of these very conditions as causes.

There are sides of medical work as applied to delinquents which it is no part of this special treatise to exploit. A number of physical disabilities, as such, lead almost directly to the commission of vice and crime. Since it might be argued that all conduct is a mental affair, it would seem that physical disabilities lead to delinquency through causing irritative disturbances of mental equilibrium. There is something in this point of view. But, yet, the relationship between, say, air hunger from throat obstruction and lethargic mental life is so baldly apparent that the effects on conduct need hardly here be dwelt upon. Or again, as various authors have suggested, it may be that the peripheral irritation of an enlarged or diseased prostate gland is the antecedent cause of psychical disturbance which leads to exhibitionism. Since, however, this is a work on the treatment of nervous and mental diseases, we must confine ourselves to the discussion of those psychic and neural abnormalities which exist in and for themselves, apart from the fact that criminalism may represent at times mental response to a bodily disorder. If this were not so we might easily be led in the direction of the Nichomacean hint and consider that all social offence is evidence of mental aberrancy.

Diagnostic Considerations.—Since one of our main contentions is that careful diagnosis, although now uncommon, must eventually be regarded as a necessary preliminary to even the legal treatment of the delinquent, we should say something about diagnostic methods. There is great value in combining the social, psychological, and medical viewpoints in the study of delinquency. A fairly elaborate schedule for collecting data has been adopted from our work by the American Institute of Criminal Law and Criminology. This whole idea of a larger investigation of causes is no more than is included in the work of the modern psychiatrist, who is more and more inclined to measure social stresses and get accurately at developmental and hereditary backgrounds as well as to record repeated cross-section studies of a patient.

For making the diagnosis that is at all likely to lead safely to efficient treatment, we confess that hours and even days of study may be necessary—all of it eminently justifiable, however, in the light of the difficulty of the problem of criminalism to be solved.

In court work, probation officers and intelligent police officials can frequently give a summary of social conditions far better than is obtainable by a single professional visit, or by an office conference with parents. It must not be forgotten that environmental stress may be vastly important to recognize, as many of our case histories show, even when the factor of mental aberration seems at first sight paramount. Official visitors for institutions, who are fitted by temperament for the work, can obtain the same type of information. In the older communities, and even somewhat elsewhere, such persons can glean acceptable data on heredity, although for this work specially trained investigators have proved much more valuable.

We cannot overemphasize the desirability of a shrewdly sympathetic attitude in any work which contemplates the handling of delinquents. One characteristic phase of police and court work is seen in the recalcitrant attitude of mind which is induced in both the offender and his relatives by arrest and trial—an attitude which precludes scientific investigation. But let the approach to the problem of the offender and his offence be that of the scientific and kindly family physician, and at once the scene is changed in its setting and quantities of information are obtainable which otherwise would never have been accessible for determination of diagnosis, prognosis, or treatment.

Through interesting the relatives, who come thus to discuss more candidly the career of the delinquent, we have learned that the facts of developmental history, both antenatal and postnatal, shed a great deal of light that is valuable for the treatment of the offender, and incidentally, of course, for the welfare of society. Time and again we have ascertained essential facts through a history of occurrences of which the offender himself knew nothing, and I cannot insist too strongly on the frequent value of the facts of early development for diagnosis and for instituting well-balanced treatment.

This brings us at once to a point most important for diagnosis—namely, that for effective study the earliest opportunity in the individual's life should be seized. Every year that passes brings less chance of knowledge of important early facts—parents die, facts are forgotten, families are broken up, and after the first years of adolescence are passed there is generally a wall of mental reserve built up which is hard to break down.

Another point which experience teaches us is that the offender before trial, unless he is mentally abnormal or an old-timer, is a totally different individual from the one seen after legal adjustment of his case. When the die is cast what more is there to be said? why should he bother about causes or antecedents? The medicine is prescribed—it only remains to take the dose. Yes, and the attitude of the relatives frequently changes also in just this way, and just as quickly. The best studies

can be made when the offender is on probation or his offence is still *sub judice.*

Examination of the delinquent must include the usual medical examination, the usual psychiatric investigation, and also various tests and studies of mental abilities. The two former are well enough known to the medical profession to need no further mention except recommendation of the recent works on mental examination methods by Franz and by Gregor. The third requirement, although not so well known to physicians, is of great importance, not only because differentiation of the clearly feeble-minded from the normal offender is socially most desirable, but also because of the many borderline cases, and the existence of individuals with specialized mental disabilities who suffer social irritation therefrom and react with delinquency. If space permitted, one might go farther and say something of the valuable results which have accrued from the diagnosis and utilization of special capabilities in individuals otherwise subnormal. Indeed, the successful treatment of a delinquent occasionally may hinge on putting him in the way of developing some single chance which he has for achieving a satisfactory mental life.

The work of Binet has vastly improved our methods of discerning and grading the feeble-minded. His system with suggested modifications should be extensively employed (see chapter IV). But the system with its rather cut-and-dried standards is useful mainly as an exploratory procedure. Defectives of a higher grade with whom one is thrown most in contact when studying delinquency need much more careful study before treatment is instituted. For practical studies into the problem of ability, especially of those above the feeble-minded grade, various psychologists have contributed to a series of tests which we have published from our own Institute. Goddard, Terman, and Fernald in this country, Ziehen and De Sanctis abroad, are some of the others who have contributed practical tests. In some important cases the results of all formal tests simply point to special abilities or disabilities which have to be investigated still more intensively both from the medical and psychological standpoints—sometimes, we find, with the most gratifying results in the way of treatment.

The direction and nature of these further mental studies and tests depends on the nature of the special disabilities or abilities and may range from intimate investigation of sensory functions and evaluations of relative strength of different memory types to discovery of artistic or mechanical ability. The diagnostic work of the educational psychologist may thus have special worth for treatment of the delinquent.

It has been no small matter for society to have had even one case taken care of, the possibilities of which were discovered by these combined diagnostic methods. An adolescent in a penal institution, suggested as insane on account of his intolerable offences, was found to have most avenues of mental occupation shut off from him on account of minor mental disabilities and defective hearing. Started, however,

on a career of healthy visual interests he becomes at once an ardent student of art and altogether a non-offender.

One comes early in the study of delinquents to the realization that there is a great deal of overlapping of causative factors and that types frequently are not at all clear and distinct. There may be a psychosis on top of an original mental defect; heredity cannot always be separated from environment; the semiresponsibles as outlined by Grasset are numerous; in many instances the offender's career is the result of personal defects plus social stress. All this mix-up of factors must have its reflection in treatment, although it is quite fair to evoke optimism through the assertion, based on our own experience, that in some cases the removal or alteration of a single genetic factor may effect a cure.

TREATMENT IN GENERAL

In considering almost any point bearing upon the treatment of delinquency or its causative factors, the laws of mental habit must never be overlooked. The criminal habit is a very definite force which has many reasons for its existence. The wearing of neural grooves or ruts, in which terms we are accustomed to think of the physiological basis of habit, may be, and often is, augmented by social or economic conditions. The professional criminal will tell you how easily his mind reverts to criminalism when he gets out of prison, most often with lack of funds and lack of occupation staring him in the face. Or during incarceration the very emptiness of mental life means that there is a vacuum into which comes rushing thoughts of the deeds for which he is committed; by this very repetition strong psychical associations are formed. This insures the ready recall of criminalistic deeds which, in the presence of opportunity, return to him with the strength of the devil's whisperings. Then, too, the weakness and general mental deterioration which supervene so frequently as the result of the unhygienic physical and mental conditions of prison life make all these mental associations and temptations much more difficult to combat. It seems as if in every way there is a direct bid for the establishment, when once begun and treated by prison methods, of criminalism as a habit.

Fundamental Considerations.—This brings us logically in sight of two fundamental considerations for treatment. First: Delinquent tendencies are recognizable certainly very early in life. It is surprising indeed to find that a large majority of criminal careers date back at least to early adolescence. The statistics of Matz show this as well as the experiences of many other students of the subject. From the findings it seems pretty safe to say that if an individual reaches eighteen or twenty without committing antisocial acts he is very unlikely to do so in the remainder of his days. If then we would take the common-sense attitude of trying to forefend criminalism we must reckon carefully with the law of habit and begin by the study and treatment of

causes of criminality as shown in children. This will prove important, too, for the defectives as well as others, for the defectives notoriously form criminal habits which might have been avoided. Of course, aberrations of conduct arise later in life from various causes, but the main chances for betterment of the whole criminal situation lie with those who study and treat children.

If criminalism, however, has once fairly begun in the individual too much emphasis cannot be laid upon the introduction of such measures as may aid in building up powers of resistance. Any conditions which tend to create weakness of will make just so much more unlikely the possibility of reform, and herein lies one of the greatest fallacies of prison treatment. To take one who has already shown himself unable to resist temptation, a reed broken in the wind, and to put him under conditions, which tend, on the whole, in even any normal individual to distinctly weaken both mind and body, and expect by this method to produce an individual less likely to perpetrate his offences than he was before—theoretically such a procedure rings false. Then from the standpoint of experience we find the statistics of recidivism amply prove that such treatment really does not tend in the individual toward a cure of the antisocial tendencies. Indeed, one writer has stated that the propensity toward misdeeds grows in direct proportion to the number of incarcerations.

Let no one think that the above comments apply only to those in whom criminality arises from a background free from mental taint or peculiarity. The same thereapeutic necessities obtain for the types portrayed in our succeeding pages. A high-grade feeble-minded boy said to me today, speaking of his thieving propensity, which had culminated in burglary, "That's how it began, from that fellow three years ago, and now he's gone and I can't help it from coming up in my mind how he told me to steal."

Sentences and Penal Treatment.—The thought of punishment undoubtedly has a certain deterrent effect upon individuals, and retribution may be essential, but definite penal proceedings should be, for the sake of society, added to by curative measures. The only rational path to this achievement is through high individualization of effort at reforming the offender made on the basis of studies of abilities, aberrancies, and adaptabilities, both mental and physical. All the influences of prison life which ordinarily are against mental hygiene should be replaced by efforts made toward strengthening both mind and body. The medicopsychologist must go in first and make his ample studies, and in any instance where there is promise constructive individualized treatment should follow. The wholesaling of any measures of reform, except matters of general hygiene or other common-sense, is to be looked on with suspicion in the light of the great variability in human needs and abilities.

Another general aspect of the treatment of delinquents is to be thought of in terms of coöperation between institutions and courts, and between institutions in different States. The history of an individual is just as

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important here as in medical work for the making of a diagnosis, particularly when a chronic ailment, such as repeated offences imply, is concerned. The decision on the treatment needed might well turn on knowledge available from prior sources. The absence of this even during trial in some cases is simply absurd from a common-sense standpoint. The very question of whether an individual is the type of a person who might have committed this or that crime can sometimes be decided by knowledge of what he has done before. Certain kinds of crime and certain methods of performing the deed are the results of certain mental tendencies, and among the various probabilities which should be taken into account in passing judgment on the offender, this is frequently one of the most important.

It must not be forgotten that any diagnosis or therapeutics undertaken by a prison physician are entirely secondary to a scheme of treatment already predetermined by judge or jury. Let X be one who has committed some offence. Now X may be an epileptic with definite criminal tendencies and will probably commit many other offences if he is at large. In fact, X has been in jail several times before. But in order that X may have a fair trial this is not set forth in the court room. The jury without knowing his full history is asked to pass judgment upon him. Perhaps it can be shown that X has committed the offence, and so the jury proceeds to find him guilty, and then the judge thinks about three months in the House of Correction will be about the right figure. Even without a jury trial, X is only a bit more intelligently handled, for the judge may not be informed of the previous offences of X, nor of his disease, which is so significant for the estimation of his criminal tendencies. The way to avoid this short-sighted procedure is through introducing competent studies of the offender after he has first been declared such. Before his sentence or probation or commitment or parole—all these being simply forms of treatment under the law—a rational basis for this or that proposed measure should be ascertained before it is decided upon. The Hungarian system for the diagnosis of the needs of delinquent minors before determination of treatment (see bibliography) is a big step in the right direction.[1] The development of colonies, hospital facilities, educational methods, and other forms and places of treatment must follow in the wake of the findings of the genetic factors of crime in individuals.

Much more study by medical men and psychologists must be given to this subject and a more systematic body of facts must be developed before our courts will be willing to take the official cognizance of the relationship between mental and physical disabilities and criminalism, which the whole subject well justifies. It seems at present as if such recognition is going to be first obtained abroad. The work of Stern,

[1] The Seattle Juvenile Court has recently established a "Department of Diagnosis" under the charge of the chief probation officer, who is a physician. Through this department go all cases before seeing the judge, and there is at once developed good coöperation with relatives. In its scheme, at least, this is the high-water mark of endeavor in this direction.

Gross, Aschaffenburg, von Liszt, who have long been studying criminal causative factors, has already had marked effect on the judiciary in Germany. The activities of the famous psychiatric clinic at Munich have had a profound influence on criminal procedure in that city. Even the police there receive some instruction in abnormal psychology, and the clinic has an open door always for offenders who show any indication of being abnormal. But in this country our methods of court procedure, our exaltation of the jury trial, and our use of *ex parte* professional witnesses—all stand in the way of clearer and saner development of the relationship between the work of the medical man, the psychologist, and the court. In juvenile courts there ought not to be any such hindrances, and if there were established in each court a physician, with good training in abnormal psychology, who would be adviser with the parents, to whom it might be explained they could go for counsel, much more could be accomplished at an early stage.

Delinquency in Juveniles.—In the treatment of delinquency in juveniles it is no small matter to make the right approach to the patient and his family. It is not that they are always too lenient with him, on the contrary, they are frequently too severe, and often are quite non-understanding of the handicaps of mental and physical troubles under which he may be laboring. If the approach of inquiry, untainted by the attitude of censure, is made, one finds at once a distinctly different response on the part of the offender and his family than that which is seen in the court room or with the police. This response opens up the possibility of preventive treatment in a way that no court procedure can ever do. Under these conditions it is merely the medical man making an inquiry into the cause of this symptom of social disease as he might be inquiring into the cause of the patient's fever.

Removal from the old neighborhood, replacement of the surroundings and interests which have failed by a more promising environment and more suitable mental and physical activities are general measures to be thoughtfully considered many times because of the successes which have been thus obtained.

I feel that I cannot make too much of the necessity for absolute candor when dealing with delinquents. Experience with the insane long ago taught me the perniciousness of deception—the effect of a lie told to a patient has lasted months and years, and stood constantly in the way of recovery of normal mental functioning. Even greater is the importance of preserving, on the part of an offender, whether normal or mentally perturbed, every possible faith in the moral stability of those in authority. Threatened, but unfulfilled punishment, unkept promises, or untruthful explanations on the part of judges, parents, probation officers, nurses, physicians have a reactive importance not easily overestimated. We have known many times of much harm being initiated by the open lie or the covert deception. The busy person dealing with many details and many cases does not apprehend the relative weight which a word may have for an individual in whose life the interpretation of the given word is a momentous affair.

That many of even the out-and-out insane have some powers of self-control, which under varying but well-adapted stimuli can be aroused to relatively efficient action, is a point not appreciated by many. In the milder degrees of mental disturbance that one meets with mostly among offenders, and particularly youthful offenders, it is a point never to be lost sight of. In very many cases there is a possibility of offering stimuli that shall make for socially acceptable behavior. These stimuli must cover, of course, a wide range—all the way from colonization for the epileptic offender to furnishing the unstable adolescent with healthy mental pabulum. The mere diagnosis of psychical instability or actual abnormality is no warrant for absolute pessimism in regard to conduct. The mild paranoiac may appear normal in ranch life; the wildest adolescent boy may pull up under military or naval discipline; the subnormal individual will generally behave with social circumspection under community regulations which include direct recognition and punishment of misbehavior. The study of the effect of social stresses and the possibilities of ameliorative stimuli must go hand in hand with studies of the peculiarities of the offender.

MENTAL DEFECT

The largest single causative factor of delinquency recognizable by study of the individual offender is mental defect. Under this term we include the following classes:

A. Feeble-minded:
- (*a*) Idiots—mental age below two years.
- (*b*) Imbeciles—mental age between two and seven years.
- (*c*) Morons—mental age between seven and twelve years.[1]

B. Subnormal or mentally dull, but above the usual institutional type of feeble-minded.

C. Mentally dull or debilitated chronically from:
- (*a*) General physical conditions.
- (*b*) Enfeebling habits—including the overuse of stimulants and narcotics.

D. Cases of specialized mental defect.

The classes above imbecility are all of special interest for the student of criminalism, but it is the high-grade mental defective who is the worst offender, inasmuch as a certain amount of shrewdness and skill is not at all incompatible with a moderate degree of intellectual subnormality. It would be difficult to state how large a percentage of delinquents are mental defectives. Even among reformatory institutions the proportions undoubtedly differ greatly and the returns from several sources would lead us to believe that among different types and areas of population the percentage varies. But all told, one would not hesitate to say that

[1] The terminology under (*A*) was adopted three years ago by the American Association for the Study of the Feeble-minded as authoritative.

if we include all the above classes, certainly from 20 to 30 per cent. of all repeated offenders are not up to normal mentally The approximate percentage would be readily obtainable if accredited mental tests in considerable variety were carried out in court work and in institutions.

Feeble-minded.—The diagnosis of feeble-mindedness is to be made by combining tests with studies of the social career. For the present, at least, one is willing to agree with the Binet system and specify as feeble-minded those children who show three years or more of retardation in tests, and those of fifteen or above who fail to do the tests which the normal twelve-year-old child can do—provided one rules out the psychoses and the causes of subnormality mentioned in the preceding paragraphs and includes, to some extent, the social definition made by the British Commission for the Study of the Feeble-minded—namely, that they are individuals who on account of incomplete cerebral development are unable to perform their duties as members of society in the position of life to which they were born. This latter we are inclined to insist on because we do find individuals unable to pass tests for their age who nevertheless do well enough in their social sphere, and who, therefore, are not socially feeble-minded. One meets with but apparently few imbeciles among criminals—most of them are in institutions for their kind.

A snapshot diagnosis of mental defect or of normality, we find by experience, whether made by a physician or a judge, is a most unsafe basis for treatment. One cannot always discern mental defect by physical appearances; we have satisfied ourselves of this by photographic studies, and the give-and-take conversation of the court-room type frequently does not bring out the fact.

Segregation in a colony or in a designated school or custodial institution offers the only successful treatment for the vast majority of cases of feeble-mindedness. This should be undertaken before delinquent experiences are begun and the criminal habit formed. The State must put itself in *loco parentis* and afford the larger watchfulness which few families of ordinary means can give to the individual after childhood. All the feeble-minded should be regarded as highly susceptible to the suggestions of vice and crime and must be protected from them. The unguarded feeble-minded girl is a potential prostitute, and the foundations of her treatment must rest on social protection.

In many instances the part played by the feeble-minded in vice and crime is passive, and with the treatment that can be given through segregation and through the new interests and freedom from temptation, which it is the role of a well-ordered institution to supply, there is a complete holding in abeyance of the delinquent tendencies. Of course the same is true in some measure of the chances afforded by country life as opposed to city life.

Removal from the old neighborhood, replacement of the surroundings and interests which have failed to develop normal social tendencies by a more promising environment, and more suitable mental and physical activities, is in general a measure to be thoughtfully considered

in the high-grade defectives who have shown only a minimum of delinquency. Some successes outside of institutions for defectives have been thus obtained in well-selected cases. Many a feeble-minded man who otherwise might be indulging in the despicable vices of city slums is serving faithfully his part in the routine of a less complex existence on a ranch or farm.

The storm and stress of puberty in the feeble-minded must be foresightedly reckoned with in order that this new life may not overthrow moral balance. Extra protection and extra constructive measures must be offered in the way of preventive treatment. An institution is now often necessary for the first time. Neglect of these precautions leads directly to the juvenile court over a path ending amid parental regrets. Eroticism for a time shows in some as a very active feature instead of being merely the passive instinct so characteristic of mental defectives. I know one such girl of fifteen whose own mother tells me she has, in a certain suburban community, seduced about seventy-five boys. Unmoral as well as immoral human tendencies may thus prove active forces.

There is a type, the so-called moral imbecile of Barr and some other authors, in which feeble-mindedness is accompanied by a marked tendency to antisocial deeds thieving, setting fires, cruelty, bad temper, sex offences. Fortunately these individuals are not numerous, but when diagnosticated the treatment can be only one thing—permanent custodial care.

Craniectomy. — The subject of craniectomy, which was exploited especially during the 90's for the cure of feeble-mindedness, *per se*, is echoed nowadays by distracted relatives of feeble-minded criminals. It is sufficient to refer to the illuminating chapter on the subject by Barr, and to say that except a high death rate in unskilled hands nothing has come of the operation.

Vasectomy.—Vasectomy, the most recent surgical measure offered as a solution of the problem of mental defect, is not at all to be regarded as treatment of the individual, however valuable it may seem from the large social standpoint of eugenics.

Castration.—Sexual desire is not immediately, at least, diminished by this operation. Rape and other sex offences are not thereby prevented. The spread of venereal disease is just as possible after as before the procedure. Castration, on the other hand, is of great value for the treatment of delinquency in certain cases, and its benefits should be widely extended. There are altogether too many cases of rape and homosexual assaults perpetrated by mental defectives—many of which could have been foreseen as a probability, and could have been prevented by this treatment. The defective himself would have had an opportunity to lead a far happier life, free from imprisonment and other punishment, if this privative operation had been performed. The bad effects of excessive masturbation seen so frequently in institutions could also in this way be prevented. No extensive studies based on prolonged observation have been published on this topic, but the report

by Cave from the institution at Winfield, Kansas, shows the sanity of the operation in proper cases.

Alcoholic Stimulants.—The avoidance of alcoholic stimulants on the part of the feeble-minded is most necessary. A young fellow coming from the good training of our own State institution became self-supporting as a helper to a milk dealer. He was given half a bottle of whisky, drank it, and within a couple of hours had perpetrated a most miserable sex assault upon a little boy who came innocently into the shop. The work of years on the part of society was undone in one fell swoop, for of course the fellow had to be committed again.

Rewards and Stimulants.—Delinquent tendencies in the feeble-minded may be often combated successfully by systems of rewards and punishments; sometimes religious influences have their effects; corporal punishment in a few instances is of great value, and is even recognized as such by the child himself. The groundwork of the mental life of defectives is composed of associative processes, as in the normal mind, and if a sharp, active, foreseeable connection between certain actions and undesired punishments is built up there develops at once a valuable inhibitory force.

The constructive, educational methods in vogue in our best institutions for the feeble-minded are of much avail for the handling of delinquent tendencies. Self-esteem and a measure of human dignity may be aroused by developing the social instinct for their own kind. Institutional people find that their patients through helping others are uplifted themselves. The discovery of special talents and adaptabilities works in the same way and nowhere has a simple form of vocational diagnosis more satisfactory results than under the régime of a wide-awake institution for the feeble-minded. Adequate self-expression brings here, too, as elsewhere, a measure of satisfaction that has many moral connotations.

For the prevention of delinquency the watchword must be, in all these cases of mental defect, early recognition and protection. Physicans are much to blame for either ignorant or cowardly equivocations and false hopes, which one hears so frequently have been held up to parents in place of truthful warnings. Society really has much at stake in warning parents of how criminals are frequently recruited from the ranks of the feeble-minded.

The criminal tendency once established in a mental defective the treatment is clear. Anything short of recognition by some such measure as the new Massachusetts law to provide for the permanent custodial control of this class will always prove a dangerous makeshift.

Subnormal or Mentally Dull.—Experience has forced us into the recognition of this fairly well-defined group, which is perhaps best described as that class of mental defectives who show social and industrial capacities beyond the powers of the usual institutional type of moron. They are much retarded in school life, and by fourteen may have attained only the third, fourth, or fifth grade. During their teens, or older, they may be found able to do all or most of the twelve-year Binet tests,

but on the more advanced tests of various kinds they show egregious failures. On account of the borderline nature of this class, in making the diagnosis one must carefully combine mental tests with the study of aberrational tendencies and of the physical background in order to rule them out of the groups of those mentally dull from functional causes or bad habits and from the psychoses.

We have found the beginnings of delinquency in these individuals attributable to several causes which are of great import for preventive treatment. A child, for instance, who is constantly falling behind his classes is obviously subjected to many mental and social irritations. We find this leads directly to truancy, and, of course, truancy means associating with questionable characters, and through this grave social offences are often involved. Broad is this path, and straight the way.

Another point is that through meagre book-learning capacity, if no other food for the mind is offered, these higher defectives achieve very few healthy mental occupations. The empty mind is the devil's workshop—vicious and criminal instincts are readily grafted in the vacant places. All this gives a clue to the treatment. These individuals should be kept in special school classes where they can have the encouragement that any child craves. Through hand work and sense training and competition with the children of their own type they have much more chance for normal satisfaction. Treatment of delinquent tendencies in this class clearly is educative and the outcome is more hopeful, other things being equal, than with a lower mental grade. The final aim of treatment is the discovery of an environment and a vocation in which these subnormals can live and work with a minimum of irritation, discouragement, and temptation.

Chronic Mental Dulness from General Physical Conditions.—One can readily distinguish another type of defective mentality not easily classified unless one takes into consideration the physical findings. This class is of the greatest interest and importance, because if one were to use merely tests which estimate the results of formal education and did not add thereto a study of native ability and an intimate knowledge of the physical background there might be made a diagnosis of feeblemindedness. We have now seen quite a number of cases of delinquent children who by reason of their lack of progress in the school have been already denominated as mental defectives, and yet who, after psychological and medical study, have been found to have such physical ailments and defects as might well account for their poor scholarship record as well as for their delinquency. I grant at once that a purely tentative diagnosis must be first given, because it may sometimes prove that there is innate mental defect as well as gross physical imperfections. The argument of the school teacher, that other children have had bad eyes and bad throats and yet have pulled up well in their work is not without its force. Gulick and Ayres have shown us that there is not, after all, such massive distinction in physical qualities between these children who are retarded and those who are not. But making up the result of a child's school life there are a number of

factors, and we must not forget that home environment, as well as a certain innate quality of mental capacity, have to do with any individual career, and whether with given physical drawbacks he shall in his mental output belong or not to the subnormal class.

This all opens up a great field for the medical man who has fitted himself to be a student of the causative factors of defective mentality and of delinquency. Out of the numerous instances which one could give, take the case of a boy who comes of a hard-working, thrifty family of immigrants. In the country school where he goes there is no efficient medical inspection. He does poorly there; the teacher comes to the conclusion that he is a dunderhead; informs the parents of this, and it is commonly accepted by all as a fact. He is held back in his grades, and his people, with their usual thrift, believe then the only thing to do is to make a worker of him, and although only a little fellow, he is assigned the heavy household chores. There is engendered a constant irritation on his part through being kept back with the little ones in school, and he seeks relief in truancy. From this in turn comes, naturally, association with the worst boys in the locality, and the habit of stealing is formed. But if one beginning at the fact of the stealing ask why and goes back to the truancy and from that to the alleged mental subnormality he is brought at once face to face with the medical problem. The boy is underdeveloped and overworked in proportion to his age and size. His vision is atrociously defective—something he did not know himself—and his hearing is far below par, probably on account of the large adenoids which nearly fill his throat. There are other nose and throat troubles, and altogether the case is clearly seen to be one for medical action if the first start is to be made toward preventing the lad from becoming a typical thief. As a matter of fact, in this given case when these physical disabilities were removed the delinquencies disappeared. But, of course, frequently such bad associations and habits have already been formed that the medical treatment must be followed by alteration in environment. It is hardly necessary to go farther in illustrating what should be done for this type of case except for the sake of urging more complete study of causative factors from the medical standpoint when questions of delinquency plus defective mentality are involved.

A striking case we have long had under observation is a so-called defective boy who has been tried in the first and second grades of a school and who was finally relegated to the subnormal room. At twelve years of age he already had a tremendous record of thieving, his specialty being department stores. At first thought the case would seem clear enough, but through medical examination it was discovered that the boy was much undersized and anemic and that he suffered from bad conditions of elimination. Altogether, one felt that the physical conditions would have to be brought up to par before one ought to say, despite his school record, that here was a feeble-minded boy. Tests for native ability, apart from school work, were fairly well done. With the realization of these possibilities, a little money was raised,

the boy was sent out of his miserable environment to a home in the country and to a sympathetic teacher, with the astonishing result that he made four grades in one year and was changed from an arrant little thief into a lad with normal respect for property. It would be hard to say whether his depredations were a reaction against the irritations of school life, where he was constantly failing to accomplish his set tasks and so constantly receiving discouragement, or whether it was an expression of his own feeling of ill-being and nervous irritation. But at any rate the medical view won the day and reformation was accomplished through hygienic treatment.

In the light of the numerous instances which we have seen where there was concomitantly defect in physical functioning, mental subnormality, and delinquency, one must urge upon all who are in this field the necessity for making a well-rounded study of each and every case. One must insist also on the value of such medical or surgical treatment and such betterment of hygienic conditions as may seem to offer hope of improvement. A rash prognosis is most inadvisable. In our experience the best that can be said is that such and such physical conditions might well be the cause of the mental dulness, and it is eminently worth while trying to remedy them in the hope of attaining better mental and moral conditions. In most instances there may be failures, in others brilliant successes.

Mentally Dull from Enfeebling Habits.—There can be no doubt of an intimate connection existing between delinquency and certain mental states, easy to recognize as aberrational, but hard to define either as psychosis or as feeble-mindedness. We have seen now a good many cases of this kind and have very frequently been able to ascertain a sufficient causative factor in the form of bad sex habits.

Masturbation.—It may well be, of course, that excessive masturbation is in itself an indication of preëxisting weakness of mental fiber. But even so, we have no right to assume that the mental qualities which were antecedent to the excessive bad practices are by themselves such as to make the individual a victim of the peculiar impulses and suggestions which end in definite delinquent actions. On the other hand, it is certainly true that the drain of repeated masturbation upon the nervous system lessens materially the physical well-being and through that tends to weaken mental and moral fiber. The physical appearances themselves—the listless attitude, the lustreless eye, the drawn face, and lack of firm expression are all suggestive, and any keen judge can pick out such cases as possible masturbators when he sees them before the bar.

But there are some in which the physical evidences are not at all, or very little, apparent. In such instances we have found, very suggestive of bad habits as a causative factor, the results of mental tests considered together with the nature and context of the delinquencies themselves. When we have found a considerable irregularity in the result of a series of mental tests, so that a summary of them fails to fit in any category of mental disorder or psychological defect, we have

had the experience time and again of ultimately discovering the case to be one of either epilepsy or excessive masturbation.

The type of delinquency, too, is frequently suggestive of the trouble, and significant also are the individual's habits of life. There is generally carelessness about dress and personal cleanliness, about conformity to those social standards of which the world makes much in judging character and ability. There is extreme irritability in the family circle, with easy indulgence in the feelings of anger, sulkiness, and disgust with everything and everybody. There is the well-known tendency to seclusion and capricious appetite. The actual delinquencies are frequently the result of some passing social suggestion, or done to satisfy the craving for excitement, or to get away from the people who know the patient well.

A typical case is as follows: A boy, aged fifteen years, with poor development and nutrition, a peculiar long, thin face and tired expression, round shouldered, is found to perform his mental tests in very erratic fashion. In telling his story he seems thoroughly weak and melancholy—often cries childishly. At first sight one would think that here is a weakling who would show very little spirit in any way. Yet we are told by the parents that there is a constant show of irritability at home, even to the point of striking his mother. The boy uses very bad language in the house; he is a great liar; frequently makes up complicated stories to cover his misdeeds; complains he is unable to do the small chores which he is asked to do in the home.

The delinquencies which have gotten him into trouble with the police are, that he is at times neither working nor going to school; stays away from home; sleeps at cheap hotels; and he frequently has stolen from employers. We hear, too, that he has repeatedly taken money from his parents. He spends the money on theatres and moving-picture shows, on meals and lodging, the latter, however, sometimes only costing him ten cents a night. At times he will go from one picture show to another all day long. He took a fancy to a semimilitary suit which he saw and at once bought it.

He complains that he has dizzy spells and feels so tired all the time. He drinks coffee excessively. He gets angry easily, especially with his mother. He says, "I play ball, but I am so weak I can't catch the ball good." At one time in order to explain his sleeping in lodging houses he told at the police station that his father and mother were dead. Of course the boy at first denied his habit, but after a time he goes fully with us into the history of his sex transgressions, which in the way of masturbation have been very excessive for years, and he says he knows this is the cause of his delinquencies.

Among those girl delinquents who run away from home, sleep out in queer places, and perhaps steal, we have found striking examples of weakness of will and erratic mental behavior in response to tests as well as demonstrated by the above antisocial behavior. If we eliminate the feeble-minded and the epileptic from these delinquents we shall find our next largest explanatory cause in masturbation—frequently

first suspected through the findings we have indicated and then corroborated ultimately by the personal history. Many a case brought in by parent or officer with the statement, "She must be crazy to do as she does," has turned out to have excessive masturbation for a main causative factor.

The treatment of such a case must be well founded or it is sure to fail. There can be no doubt that a vicious circle is established; the bad habit leads to bad physical condition, and the latter in turn leads to weakness of will, on account of which the bad habit itself is not firmly assailed. So one of the first points to be looked after is betterment of physical conditions. The medical adviser must go carefully into the question of hygiene and general physical upbuilding.

Then as to fighting the habit itself; the people with whom the patient has been in contact have not succeeded in understanding the trouble; if they have known of it they have failed to help the situation, and so it stands to reason that there is more chance of self-control being evoked by the influence of strangers. The best results we have seen have been obtained by a change of environment and by the establishment of new interests and new acquaintances. I am convinced that the most important single measure for the relief of this bad sex habit and through that for betterment of the mental and moral condition is to be realized in the constant companionship for a sufficient period, perhaps several months, of some suitably equipped and stable person who will undertake to see that the patient has healthy mental interests and that he is practically never left to himself.

Weeks or months of abstinence lends a new color to the situation in the offender's eyes; there is now renewal of will power and mental vitality. We have observed some wonderfully good results, mental and moral, when the delinquent has been placed in a decent home and money paid to some good woman to use her best influences and watchful care under medical guidance. But we must confess that this success, though it has been achieved sometimes in seemingly desperate cases, has nearly always been with young children. The older offenders are most difficult to manage; the habit is often too well established and the environmental influences are too hard to control. We have seen many of them pass on to further offences and commitments, and a few finish up in the insane asylum. Occasionally, however, it has been found possible to tremendously improve the mental condition and check the habit and the antisocial tendencies in older offenders, and the possibility of even occasional success should spur one to urge the patient and the relatives to make every attempt.

Sex Perversions.—The effect of other sex perversions is by no means always measurable in terms of mental dulness, but occasionally when the practices are begun early there appears to be a decided blunting of both mental and moral being. The best in the individual seems overwhelmed, and mental states of apathy, inattention, carelessness, and even confusion supervene. There can be no doubt that some take easily to these practices and suffer no mental shock from their introduction

to them, but others are greatly affected by the experience. The treatment of perversions is indicated in another chapter of this work.

Narcotics and Stimulants.—The mental effects of habits whereby various narcotics or stimulants are taken into the system should be considered in its relation to delinquency, but perhaps better, with the exception of tobacco, under the head of toxic psychoses. However exaggerated the claims of its antagonists and however fairly the effects of tobacco on the adult may be slighted the bad results on the growing organism of considerable tobacco cannot be overlooked. The facts seem to be that when even mild tobacco, as in the form of cigarettes, is used in some quantity by the young boy there results frequently a mental hebetude and weakness which shows in both school work and tests. This is found associated with delinquency sometimes and is undoubtedly to be regarded as a contributing factor. Of course, the habit should be discontinued for the sake of the general result, and occasionally this change alone results in mental and moral betterment; but in nearly every instance there are other factors so intimately involved in the situation, for instance, bad sex habits, that the mental dulness cannot, in the name of truth, be certainly attributed to the tobacco. We recently have had under observation a case of temporary but well-defined psychosis resulting from the overuse of plain snuff in the instance of a boy who had been a user of it for years and who indulged excessively following a period of enforced abstinence during an illness. The mental symptoms were confusion, excitement, violence, and destructiveness. Recovery, except for great nervousness and some erratic behavior, followed in a couple of days after withdrawal.

Partial or Specialized Mental Defects.—Our study of delinquents has brought us often in contact with interesting cases in which there exist various special defects in an otherwise fairly normal mentality. The types enumerated previously are assumed to have a general lowering of intellectual ability—of course, there are unevennesses and sometimes special abilities—but in the group now under consideration there are more or less definite localized lacunæ in intelligence or ability. As in some of the previously mentioned instances, so here, the beginnings of a delinquent career can very clearly be traced to the social irritants and mental dissatisfactions which result from inability to succeed in certain undertakings which were forced upon the individual whether in school or at work.

The growth of human beings may take place without the development of some one or two mental qualities or capabilities, the rest of the mental structure being possibly normal. There is no more reason to wonder at this than at a case of congenital absence of the pectoralis major, and it is no more to be suspected without a thorough uncovering of the general make-up than is the latter. Just as in certain cases of feeble-mindedness there may be the rising up of a single quality, such as arithmetical or musical ability, above the general low level of intelligence, so in normal individuals there may be the sinking below the average level of a single mental ability. Of course, the effect of some

abilities being below par has no special social significance, and so has nothing to do with the inducing of criminalism. For instance, if a person does not know one musical note from another it means little for his career; but there are certain types of mental abilities which have much to do with success or failure and with social irritations. The one which we have most frequently noted is subnormal arithmetical powers, and perhaps next in order comes poor language ability.

A specific case of the former was a big, lumbering boy of seventeen, who comes from a home where everything socially was on the up grade. All his brothers and sisters had succeeded, in true American fashion, far beyond ancestral traditions, and the father and mother and children, with this one exception, were full of ambition. This boy by courtesy got to the sixth or seventh grade in school, but he was always considered lazy and inefficient. He was then put into a good business college because, forsooth, his whole family had made their upward start through learning business methods. Here he proved an utter failure and got into one trouble after another with the police. On one occasion after he had been away from home for some time, he was found living over a livery stable, much to the disgust of his family, and was making his living by tending the horses. An examination into the capabilities of this boy revealed perfectly clearly that while the fellow could pass for a person mentally normal, that he had a well-marked lacuna in the mental field covering just these abilities which would be called for in a clerical position. Despite all his years of instruction, his earnest efforts at tests showed his knowledge of the simplest arithmetical processes and his power of accuracy to be extremely deficient. The case gradually unfolded itself as that of a strong youth who had quite good ability along certain manual and mechanical lines, who had never found any avenue of satisfactory self-expression, who had constantly an amount of inward dissatisfaction and irritation enough to cause him to react in antisocial ways. No doubt the erraticisms peculiar to the adolescent period and his lack of economic independence aided in his downfall. The main chance for adjustment was seen to be through removal of the causes of mental irritation and dissatisfaction. It was found possible to bring this about, and with the proper vocational change there came a mental satisfaction which has resulted in normal social behavior.

Another case of this general type is worth citing. In this instance it was the irritation of school affairs rather than vocational unfitness. A certain definitely delinquent boy, who was said to be not fit for toleration in any decent neighborhood, was in the school room for subnormal individuals, although he was some fifteen years old. Much to our surprise the boy gave us some of the best reactions we had ever had on a wide variety of tests. His sole difficulty was with language, and although he had been in school for seven or eight years, he still could not read first-grade passages. His own statement regarding his delinquencies was significant. He said he was kept down with the "dippy" ones when he wanted to go to work, but he could not go to

work because he could not get a school certificate. He came from a poverty-stricken household and had no outlet of self-activity which gave him any satisfactory self-expression. Through this came indulgence in various types of misdeeds—none of them had yet been very vicious or criminalistic, but, no doubt, in a short time would have developed into worse things.

Of course, such cases at once are seen to require studies into perceptive abilities, sense defects, memory types, powers of mental coördination and apperception before treatment, whether social or educational, should be undertaken. Diagnosis once made, however, many points in regard to treatment become instantly clear.

EPILEPSY

The extensive relationship between epilepsy and crime, easily discoverable through enumeration of the large number of criminals who are epileptic and of epileptics who become criminals, is one of the most striking findings of criminologists everywhere; and this notwithstanding one lays aside the theoretical considerations of Lombroso, and regards as unproved his contention that the typical repeated offender, although not showing epileptic phenomena as such, is really an epileptic whose intracranial conditions may be found to be those common to that disease, and whose behavior, although containing none of the strictly episodic phenomena of epilepsy, still has spread all through it typical epileptic tendencies. Not at all from any such *a priori* standpoint, but from the sheer findings of the proportion of actual epileptics among repeated offenders is one convinced of the close relationship between the two conditions. We ourselves have been utterly surprised to find no less than 7.5 per cent. of a series of repeated offenders studied by us, now numbering nearly a thousand, to be amply proved cases of epilepsy, while still others of the series are to be regarded as probable victims of the disease.

The treatment of epilepsy as such is not necessary to mention here, since it is covered in another chapter of this work, but certain features of the phenomena of epileptic criminality deserve special consideration because of the special impetus which they should give toward the social therapeusis of this disease.

Social Dangers from Epileptics.—The epileptic who develops criminalistic tendencies becomes at once from the standpoint of society a most dangerous fellow—his actions are so incalculable. His motives are so unsuspected and hidden in the aberrations of his consciousness that he becomes much more irrational in his social path than an animal wandering in the jungle. A sudden whim or impulse, and any deed may be committed. One could follow up Lombroso's stories of epileptic murderers with other examples, but a less gruesome and just as typical an illustration is the following act of a boy, whom we know to be most of the time a very pleasant, frank, and ambitious young fellow, subject

to occasional major and frequent minor attacks. Walking along the railroad track he pictures the oncoming of the "Through Flyer," makes inquires as to what time it is due at that point, through his knowledge of railroading seeks out some angle irons and skilfully fits them over the track so that the train will be derailed. He then goes and tells some boys in the neighborhood to come on down in a half hour and they will see a big wreck. Fortunately the horrible accident was averted by an officer making an inspection about five minutes before the train came along. The boy was easily discovered through the warning he had himself given. This same epileptic boy has committed other criminal or quasi-criminal deeds under sudden impulses or even as well-premeditated actions for his own supposed advantage, but here was an act so uncalled for, so foolishly advertised, that it seemed more than usually peculiar. I have talked to the lad many times about it. There was no adequate motive behind it—just the vacant track and the thought of the "Flyer" coming and how it would look if it was all crumpled up. There had been no major attack for a number of days prior to this occurrence, but there seemed to be considerable amnesia for the period immediately preceding his appearance at the point of the attempted wreck, which was many miles from his own home and to which he had steadily walked for no given purpose. This frank lad does not say he could not have controlled himself at this time. He is not sure of his own irresponsibility. He is even inclined to think that he was responsible—being a fellow of considerable conscience in his better moments. The fact is that the states of consciousness of an epileptic vary all the way from full light to complete darkness, and no contention about responsibility for this or that deed will cover all the twilights of consciousness and all the possibilities for the next delinquent act. There is only one social treatment for such an individual, in the present light of our knowledge, and that is permanent segregation in a suitable colony.

One can have no doubt after studying a number of these cases that a criminal habit, an antisocial way of looking at things, a regarding of one's self continually in the light of a possible breaker of the law is just as much establishable under the ordinary laws governing the formation of habits in the mind of an epileptic as it is in the mind of a normal person. So much the more should we realize the social necessity for the complete social treatment. The possible deterrent effect of punishment for the prevention of future criminal deeds is just as incalculable in this type of individual as are his own mental states.

Little has been made in the literature of a very important social fact—namely, that epileptics frequently develop extremely early from a general physical and also from a sexual standpoint. This premature adolescence itself might well be considered sufficient reason, outside of the epilepsy, for a considerable amount of moral instability. It would seem as if this superabundance of health and strength was a distinct disadvantage from a moral point of view. The early sex development which one has encountered in numerous cases often has led

to immoral conduct based on early awakened desires. In the case of an epileptic, let there be a strong appetite and the typical epileptic weak or erratic will power, and the result can only be one thing. We saw some time since an epileptic criminalistically inclined boy of thirteen who had all the sexual development and passion of a strong man. His mother tragically put it: "What shall we do with him. I fear for my sex." It had proved a difficult matter to handle this boy in an institution, and now he was free in the community. In all commonsense, unless these individuals can be handled in an epileptic colony where, however, there probably will be rapid deterioration from masturbation or homosexual habits, there should be a complete emasculatory operation. At an early period in the history of such a case there would have been no difficulty in getting the consent of the parents, and there can be no doubt about the benefits which might accrue to society from the procedure. Many a case of rape or even of "Jack-the-Ripper" type of murder could have been foreseen and prevented by appreciation and treatment of the combination of abnormal physiological and mental phenomena which can be easily recognized as likely to lead to such gruesome crimes.

In the treatment of epilepsy correlated with delinquency it must never be forgotten that many cases of this disease in which there are only minor attacks show the most profound moral and mental deterioration. Judging from our experience plenty of individuals of the migratory or actual vagrant class belong to this type. We have kept track of epileptic boys who have become wanderers. They are aware of their own disease, but will persistently deny its existence to physicians in prisons, or where otherwise encountered, and so will go about the country unrecognized as epileptics.

A period of observation is often necessary for the making of the diagnosis. In many cases studied by us the knowledge of the disease has come through parents. In the younger offenders, before naïvete has been lost, data can be directly obtained, but later there is sometimes the greatest secrecy observed with regard to the trouble. The record of an actual convulsion having been observed, though it may have been years prior, has been very helpful to us in making a diagnosis. This at once brings out an essential matter for our whole social conduct in handling criminals: Allowing that a rational and effective treatment of delinquents can never be carried out except by taking into account causative factors, then it becomes clear that valuable parts of the prior history can frequently be obtained only through coöperation between institutions and courts, even between those in different States. This coöperation is one of the most needed advances in American criminal affairs.

THE MAJOR PSYCHOSES

We need dwell little on the treatment of offenders who are subject to any of the major psychoses. Their delinquency, clearly, is only an

incident in the course of their disease. If the paranoiac's delusions lead him to regicide, or the paretic's excess of somatic impulses brings about a sexual assault, or maniacal psychomotor exhilaration induces physical violence, it is all one with the suicide of a melancholiac. The treatment indicated is the treatment of the mental affliction itself.

However, under the influence of morbid impulses and hallucinations, appearing early in the course of a chronic mental disease, offences may be committed, the psychopathological basis of which it may then be difficult to legally or even medically determine. And yet society is vastly concerned in the early predetermination of just such an insane criminal career. Some years ago I had under observation a fine-appearing young woman whose record was, in short, as follows. After marriage she became with her young husband greatly interested in religion, and they occupied themselves much with their devotions. During this access of piety, at one of her menstrual times, she heard the voice of God commanding her to raise her beloved mate out of this wicked world. She attempted a homicidal assault, which was easily thwarted. Soon afterward, at another monthly period, she procured his revolver and shot him. He lived, but carried the bullet at the base of his skull. Then she was placed under observation in a private sanitarium where it is said absolutely nothing out of the way was observed. Her husband stated that it was then advised she become pregnant. She went home and conception soon occurred, and during the pregnancy no hallucinations appeared. A few months after giving birth to a child her menses reappeared, and with them the call came to get her child away from worldly contamination. She thereupon battered in the side of its head against the table. Seen then in the hospital for several months she was quiet and well behaved, and the chief observation was that one might perhaps judge her emotional reactions to these past well-remembered events to be not normally keen. Lacking the diagnosis of insanity from actual observations in the hospital, her treatment under the law could not consist of permanent detention against the wish of relatives, and once more she was taken out by them, became pregnant again, and this time, a few months after its birth, she effectually saved her second child from all earthly evils by putting it into the fire.

Such cases of recurrent crime-producing hallucinations, even though there are long intervals without provable mental deterioration, and all cases of delusions with antisocial import, urgently demand prolonged segregation. To be sure, there is frequently opposition, even legal opposition to this, and both the public and our law-makers need education about the dangerous probabilities of the careers of individuals subject to these aberrations. But sometimes even physicians fail to recognize or assert the future dangers of the case, and so thereby stand in the way of adequate social treatment.

Exact statistics, even if they were to be had, of the incidence of the various forms of mental disease among offenders would be of no great value for this work. In a very general way it may be said that next in importance after mental defect and epilepsy as causes of delinquency

come the abnormal mental conditions connected with alcoholism, acute and chronic. Then at considerable numerical distance follows paranoia, although in single instances the amount of law breaking accomplished by some of these persistent, tireless, and occasionally litigious monomaniacs is astonishing. Paretics, melancholiacs, manic-depressives, and dementia præcox cases furnish each a quota of delinquents less strong in numbers. Although especially on the lookout for them we have been surprised to find comparatively few cases of dementia præcox among the hundreds of youthful delinquents we have studied. They commit, as a rule, minor offences, such as the wanton destruction of property and petty stealing, and their mentality being easily sized up as queer by their relatives, they are more frequently taken to a clinic than even to a juvenile court. Diseases in which there is mental confusion or fluctuation of attention are not nearly so likely to lead to crimes as those in which the ideas are more fixed. The main point in the treatment of offenders suffering from any of the major psychoses is early recognition of the underlying causes and segregation of the individual.

THE MINOR PSYCHOSES

Of much greater importance than the mental troubles just mentioned, both on account of the numbers involved and on account of the greater therapeutic possibilities, is the loosely classified group of so-called minor psychoses and the borderline cases. In many of these an institution for the insane is not the last word, and it is not always necessary to fill out commitment papers at any time. In our own practical situation we have found the text-books of psychiatry offering very little help for the understanding of several of these latter types. It is certain that the acquisition of better methods of study will bring to light much that is otherwise obscure, neglected, and often easily passed over by tagging it with a name.

Constitutional Excitement.—We have studied cases in which the physical findings were normal, the mental tests were done either fairly or quite well, but by a general study of the reactions a notable excitability was discovered. There was restlessness, a distinct feeling of well-being, rapidity of psychomotor reactions—all not only exhibited temporarily, but continued according to the history and our own observation, for years. Emotional reactions were characterized by much merriment and a quick passing over of anything unpleasant or distasteful to the individual. There was lively facial expression and various nervous tricks, such as biting the finger nails. The delinquent acts in these cases have been such as one might suppose—seeking of excitement through illicit pleasures. One girl had been indulging in sex relations quite unrestrictedly with boys. Another was a considerable runaway, going even on long railroad journeys, and always being able, on account of her natural vivacity, to make friends easily and,

temporarily at least, to gain the sympathy of people by telling the most fabulous stories of her family conditions. Very little regret is shown by these individuals for their misconduct. All the world is a passing show, the old is readily put behind and the new taken on, and indeed the latter is eagerly reached out for. Heredity is frequently bad—in one case the delinquent came from a most neurotic family.

From the beginning the treatment should be undertaken away from the home circle. Frequently the relatives have had to put up with a great deal from a person whom they never seriously thought of as insane and are themselves not at all likely to react in the best way. Sedative treatment is almost impossible to get carried out at home. Just where to place such borderliners is a difficult question, but if an institution of the best reformatory type can undertake the case fairly to the rest of its inmates, I conceive that it may be better than anything in the nature of an insane hospital. Frequently these individuals have been feeding themselves upon mental and physical stimulants, on cheap theatres and bad company, salacious items in newspapers, and using much tea and coffee. The excellent system of outdoor life provided for in many industrial schools, even in some of the institutions for girls, with the quietness and regularity of life induced by the absence of stimulants and in other ways will be of the utmost service in bringing back such individuals to the normal. Sedative baths here, as in well-developed forms of mania, may be tried.

To distinguish constitutional excitement from hypomania, which according to some writers alternates with periods of mild depression, may be a difficult and perhaps for practical purposes not a very momentous task.

Alcoholism.—A strong point is made by Mercier when he insists that acute alcoholic intoxication should be classed as a toxic insanity, usually brief in duration, having many direct and indirect relationships to criminality. There is no necessity here to reiterate the crimes against person and property, the acts of cruelty, the ugly deeds of neglect and meanness which are committed in this condition of temporary insanity, nor need we dwell on the tremendous number of criminal cases where alcoholic intoxication is the main feature.[1] These facts should be known to all. The treatment of alcoholism, as such, is dealt with elsewhere in this work, but needs special recognition in its relationship to crime.

Some individuals, peculiarly predisposed, have the ugliest passions and the most dastardly impulses aroused by even mild intoxication. Vicious deeds, varying from criminal neglect of an infant to stealing or destruction of property, or to murder, are indulged in. Some of the delinquencies are repeated over and over in subsequent attacks and the same type of unlawful behavior may lead the same individual to be committed scores of times. Jane Cakebread, with her 280 commitments for "drunk and disorderly," may be almost paralleled by the

[1] The 1910 criminal statistics for England and Wales just published show that of a total of 168,260 convictions, 54,305 involved drunkenness.

records of wife beaters and dangerous street brawlers. Our knowledge of delinquent drunkards leads us to agreement with Mercier: "The usual course of letting him [the drunkard] off with a trifling fine, or a few days' imprisonment, has been shown, by the experience of several generations, and of hundreds of thousands of instances, to be utterly futile and ineffective. It has not, apparently, the slightest deterrent effect, and the same offender receives these sentences, hundreds of times repeated, without amending his condition in the least. If every person charged with wilful drunkenness, or with offences committed in a state of wilful drunkenness, were to be punished, on the first offence, with six months' or even three months' imprisonment, without the option of a fine, charges of drunkenness would be enormously diminished. The drunkard is as much a danger to society as a lunatic at large, which he is, and when he comes to commit an offence in consequence of his drunkenness, he should, in my opinion, be punished not so much in proportion to the gravity of the offence committed when drunk as in proportion to the deliberateness of the intentions with which he brought himself into this dangerous state."

The treatment for such offenders should ever be calculated to serve as a warning against further indulgence, and at the same time must, to further the social end in view, insure the existence of such physical and mental conditions as may render abstinence reasonably possible. Otherwise the social treatment is an anomalous farce. Incarceration under will-weakening conditions offers no chance for better conduct in the future.

We have had ample reason to become acquainted with the disasters attendant upon the conjunction of alcohol with mental defect or epilepsy. A very little liquor sets these unfortunates far off the social path—turning some of them into raging beasts of prey, undertaking, perhaps with cunning, the most wanton assaults. The treatment of alcoholism in these cases resolves itself solely into segregative treatment of the individuals themselves.

Chronic Alcoholism.—Offenders who are sufferers from the depleted and aberrational conditions of mind and body accompanying the chronic abuse of alcohol need special recognition and treatment. The punitive measures suggested under the previous heading as part of the treatment can here be avoided, and the only hope is through study of the causes and commitment to prolonged or permanent colonization. The State has a duty not only in protecting itself against immediate offences, but also against possible unfit progeny—unfit, perhaps, through acquired defect of germ plasm, perhaps through antenatal alcoholic poisoning, and certainly unfit through the bad environment of the drunkard's home. We know a chronic alcoholic woman with many delusions who has exacerbations accompanied by violence, who destroys property and engages in personal assaults. She has been in prison scores of times in this enlightened country of ours. She gets short terms, comes out, breeds children, and soon returns to her penal abode. Her husband has occasionally joined her on a spree, and has himself served several

terms in jail. Fortunately only five of their twelve children are now alive, but of these no less than four are criminals of no mild variety. We could fill a small volume with case histories of this type showing the price society pays for the neglect of preventive treatment. One of our most striking findings has been the great percentage of alcoholism among the parents of youngsters who turn early to criminal ways. Colonization of the chronic alcoholic criminal for a long period is the only treatment worthy of the name.

Other Intoxications.—Mental states following on various forms of intoxication play some part in criminalism. Certain individuals susceptible to poisons, even apart from the actual state of what is ordinarily termed intoxication, may under their influence be in a highly irritable, inflammable, and antisocial frame of mind. Of course, this is most frequently seen in alcoholic intoxication, but occasionally mental states leading to criminal deeds are seen from intoxication by drugs, particularly opium and cocaine. The principal point to be remembered is that the mental effects are prolonged and may last days or even weeks after cessation of excesses.

Occasionally one finds exaggerated and gregarious instances of this sort. A crowd of young fellows drinking and carousing, eating little food, smoking excessively, sleeping but little, will sometimes for long after a debauch be in the most reckless attitude toward society. Self-control, mental and physical, is largely interfered with. One has seen a young fellow, for instance, days after the complete stopping of intoxicants, utterly dazed, but still retaining many vicious impulses which led to an attack upon a police officer. This fellow seen still later, after an enforced abstinence of a month or so, was almost unrecognizable so changed was he for the better in appearance and mental attitude. The running amuck of the hasheesh eater is almost paralleled by the deeds of toughs following a debauch with alcohol and drugs.

Some sex perverts keep themselves pretty well doped, we find, with cocaine or morphine. The chronic intoxication of morphine leads in some to loose sex morality, to excessive lying, to much general moral unreliability, and may eventuate in thieving and swindling propensities. The changes in personality occurring in the course of such intoxication are more pronounced on the moral than on the purely intellectual side, and so by a direct route the path of the habitué may lead to criminalism.

Chorea.—In the abnormal mental conditions occurring as part of the symptom-complex of Sydenham's chorea we have at times found an immediate source of delinquency. A typical case is that of a girl of sixteen who has had two or three attacks. In each there has been some excitement and confusion leading to erratic conduct. Her family say she is quite unreliable. The motor symptoms pass, or are intermittent, but traces of the mental state persist. She speaks boldly to men on the street, neglects her duties, lies as to her whereabouts, pretends to go to work, wants to be out late at night and to be going much to dances, and has been seen in wine rooms. Her family find it necessary

to keep strict watch on her, but she finally disappears from home for several days and then gets arrested as she is planning to leave the city with a man met the day before. Observed for a few days prior to her going into court the girl appeared clearly insane. Much mental confusion and amnesia for recent events, much excitement, and many evidences of erotic tendencies were found. The psychomotor hyperactivity has produced a vivaciousness and bright looks which can readily be seen to be dangerously attractive.

An excitable and very suggestible boy was frequently in trouble with the authorities on account of stealing under the leadership of another lad, and finally a small burglary led him to be sent to a modified prison type of reformatory. He had had a former attack of chorea, and under the unhygienic conditions of incarceration rapidly suffered a recurrence, and the prison physician appealed to the sentencing judge for a reversal of the commitment.

A rational treatment of cases of this kind must comprehend medical care under hygienic conditions with moral surveillance. The best of results may be expected. The favorable prognosis suggests that treatment should avoid the possible mental shock involved in the semi-police methods of transference to a detention hospital for the insane and a subsequent jury trial, with a following commitment, such as is necessary in some States. The home life in the case of the girl mentioned was not quiet, and so probation was not to be thought of as satisfactory; treatment in a convalescent home proved morally a failure; but under the sedative outdoor conditions of a girls' industrial school in the country there was rapid recovery of mental and moral stability. The boy likewise has gained in both directions, but here it occurred under home conditions, under probation and the attention of a physician and the visiting nurse. To insure successful treatment the delinquent choreic case must be studied carefully in its social as well as in its medical aspects.

Pubertal Psychoses.—This is a group of mental disorders without specific symptomatology, showing now this and now that variety of erratic behavior, and because of the usually temporary nature of the aberration more often seen and recognized by the general practitioner or by those specially in contact with adolescents than by psychiatrists in institutional work. In a juvenile court clinic one not very infrequently meets with instances where bad conduct, particularly outbreaks of obscenity or of mild sexual offences, of stealing, of violence, or vicious threats of violence have been indulged in as the expression of impulses during periods of temporary disturbance at the pubertal epoch. The psychical characteristics of these young delinquents vary greatly, and as observed by us may involve amnesia, moderate psychomotor excitement, disorientation, slight depression, explosions of irritability.

The subjects of these disturbances may have seemed to friends and school people quite normal heretofore or they may have been earlier recognized as erratic or as slow to learn or as rather shy. It would naturally seem as if those already recognized as somewhat off the normal

might suffer more from the onset of the instabilities of puberty, but yet this is not always so. The worst case we have seen, a nice-looking girl who made atrocious threats and assaults within her family circle and once or twice in other homes, was by all accounts before these incidents quite a normal child. The diagnosis may be first suggested by evidence of foolishness in the method of stealing or by there being no rational cause for show of violence, or by the findings in a cross-section study of the individual—although on account of the variability of the mental conditions from day to day the latter may be misleading. Confirmatory points are given by relatives. Through a study of the whole situation and the discovery of partial amnesia, or of some cloudings of consciousness, or of bewilderment in the attempt at moral or other orientation, a diagnosis can be tentatively offered and treatment adopted which will in most instances suggest the possibilities of the diagnosis.

For treatment it must be remembered here again that while it may be impossible to estimate the exact amount of lack of self-control and consequent moral irresponsibility, nevertheless very good results are achieved through the scheme of offering incentives to the development of self-control by having the court continue the case from time to time on probation instead of dismissing it on a plea of irresponsibility. A wise probation officer is of great value in the treatment. While this feature is being dealt with there should be thorough medical consideration and adjustment of any trouble with eyes, ears, or general health. Also the question of masturbation should always be gone into. We have found a temporary change of environment especially beneficial. Cases with even serious delinquent and mental features, such as the girl mentioned above, have been seen to entirely clear up in the course of a few months. The prognosis, of course, must be held in abeyance until the possible temporary nature of the disturbance is proved.

Adolescent Instability.—All the psychical phenomena peculiar to adolescence, the vague or well-defined longings, the giving of expression to pent-up feelings, the dissatisfaction with life, and the variabilities of will must hardly be magnified into psychoses, and yet for the understanding of youthful delinquency, yes, and for understanding of beginnings of whole careers of criminality, they form an important chapter. We have found ourselves including time and again among our causative factors the term adolescent instability. Nothing else will seem to explain the recklessness, the yielding to sudden whim, the lack of foresighted conduct in an otherwise normal individual the desire for adventure at any cost, the sudden breaking over of the social traces, the display of apparent contradictory phases of character.

This whole range of diversified phenomena has no doubt its direct relationship to the psychoses which arise first during this period—the new mental, social, and physical experiences and readjustments may bring about greater or lesser disturbances in any of these three lines, and it is difficult to determine what are pathological and what are merely physiological incidents. The social dissatisfactions and desires

for a larger horizon which are reflected in the immense number of runnings away from home which occur during this period are evidences of the needs of adolescence. If a youngster says, "I just had to get away from home, I wanted to see something of the world," one regards this as normal enough, but if the same impulse leads to the throwing off of the most valuable social sanctions the whole affair takes on the aspect of a psychopathological as well as a social phenomenon and, of course, is a most dangerous event for society.

Sometimes the tendency is greatly accentuated through an early onset of general and sex development. Then mental powers, especially the will, as expressed in self-control, have not grown apace with physical conditions. A fine-looking boy or a big, strong intelligent girl suddenly at fourteen or fifteen turns society and its canons of decency down flat. The girl leaves home, picks up a strange man or boy and goes deliberately to live with him; is dissatisfied again in a few days, perhaps makes a pass at attempting suicide and flounders about, finally bringing up at the police station. We have seen so many of these cases, both boys and girls, in which the event was so unexpected by the family that the chain of antecedent events as such never seems sufficient to account for the behavior. There is suddenly a lack of mental balance.

The ideal treatment begins with parental watchfulness over girls and boys during adolescence. By watchful care is not meant mere repression, but rather the fostering of healthy mental interests sufficient to offset any possible predilections toward breaking over the social traces. Peculiarities of behavior during this period are frequently inevitable and must be charitably regarded. When they are observed the greatest efforts must be made to introduce new interests. Travel at this time is desirable, and for the many who cannot afford this, local excursions, especially in connection with topical studies, such as are occasionally offered in connection with settlements and schools, may help to satisfy the desire for new interests and experiences. An abundant mental life is a most valuable asset for pulling through adolesence without damage. Religion is a saving force for many at this period.

When the laws of society have been broken and adolescent instability seems to have been the main causative factor, society itself has a great deal at stake in setting the right treatment in force. Many a criminal has been manufactured through the legal commitment of an ill-balanced adolescent to association with hardened offenders. What began with psychical instability may by improper treatment continue as a definite habit—hence it is most important to study and modify the individual's life at this first appearance of misdeeds. Society must, in *loco parentis*, avoid mere repressions and set constructive measures in operation.

Amnesic Fugues.—Wandering from home is a very serious offence in our civilized communities, not only on account of the trouble and sorrow caused by the deed itself, but also through the fact that vagrant life leads so readily to thieving and antisocial practices of many kinds. Such wandering is an incident in several disease conditions—there are

the irrational journeyings of epileptics which may be done quite automatically and unconsciously, or under one of the perverse whims of the semiconscious states characteristic of the trouble; there is the lazy, aimless wandering of the feeble-minded, done, as a rule, under the impulse of good weather or social suggestion; there is the semirational endeavor of the paranoiac to get away from suspected people and conditions. Then we may observe an almost obsessive tendency to leave home or get away from certain people which may arise as the outcome of inner mental conflicts. And, of course, there are many environmental dissatisfactions which may lead to journeying afar. These are all to be differentiated from another type of wandering which has been designated by the term amnesic fugue.

The fugue proper is a wandering or flight undertaken without rational impulse; persisted in frequently in spite of discomforts; begun suddenly, although there may be some suggestive premonitory symptoms such as restlessness, staring of the eyes, drawn look on the face; and recovered from with more or less amnesia for the period occupied by the wandering.

By some authorities this special type of attack of wandering has been designated as hysterical fugue, but why the diagnosis of hysteria is made for every case seems not at all clear. As Benon and Froissart and others have said, it is quite impossible to distinguish between the hysterical and epileptic type of fugue. When other epileptic phenomena are not present this is undoubtedly true. We can best afford to let the ultimate relationship of the phenomena remain in abeyance when other signs of disease are not present and regard as a definite entity the class of amnesic fugues as such.

This special phenomenon, frequently regarded merely as a delinquency, is met with in young children as well as in adults; but while many cases have been recorded, it is, on the whole, a comparatively infrequent affair. One who sets out to investigate causes of running away among children will find but few instances of true amnesic fugues. When it does occur, however, the whole mental process seems to be the same in both children and adults. French medicopsychological literature, as shown in Joffroy and Dupouy's *Fugues et Vagabondage*, is rich on this subject, and one might naturally draw the conclusion that fugues are more common on the continent than in America. Perhaps this is so, but without more scientific study of American vagabondage than has yet been undertaken one would hesitate to offer such an opinion.

A differential diagnosis is of course most important for treatment. One must come to the point by the process of elimination. This was clear sailing in the case of a boy, seven years old, which we studied. In the first place he was distinctly bright mentally, indeed, rather precocious along some lines. He came of educated parents and was more than able to keep pace with the mental stimulus which they gave him. No evidence of epileptic phenomena of any other sort was obtainable. The fugues never took place in any known relationship to environmental

dissatisfactions. In many ways the home was very attractive for the lad. He would sometimes dress himself before his parents were up in the morning and be off without saying a word to them. He had not been severely punished, because his parents realized it as a peculiarity. They said they could sometimes tell when he was going to start because of a very drawn and pale appearance of his face.

That it was really a fugue and no mere accidental or voluntary wandering there can be little doubt, when one considered that this boy would go all day without food, often incompletely dressed, often under adverse conditions of weather, before he was found or came to himself, and when he returned home often was completely exhausted. No examination on the part of ourselves or questioning on the part of his parents has ever elicited that the boy knew except in the very vaguest way where he had been or what he had done, and his mental capacity was such that ordinarily it would have been a very easy matter for him to have oriented himself. Such mental tests as we gave him led us to grade him as well above the ordinary in ability and information. The boy began these periods of running away at three years, and they have been of frequent occurrence. He comes of a family in which there has been much appearance of this tendency to wandering, even during adult life. It is probably the same type of trouble in each instance and various authors adduce evidence to show the similarity of fugues in children and adults.

Of treatment we have little to say; Patrick well points out the necessity for differentiation of the different backgrounds which may exist in different cases. Where there is suspicion of the fugues being connected with epilepsy then the rational treatment is that for epilepsy, in cases of hysteria, suitable therapy for that condition will be indicated, and so on. The relationship of fugues to moral problems is always apparent, and there can be little doubt that sometimes, for various reasons, the impulse to wander is given way to where it might have been stemmed. Anything therefore that will build up the will power is worth trying.

Senile Mental Changes.—During the involutional period of life there is frequently, concomitant with the supervening weakness of general mental powers, a tendency toward some rather definite forms of antisocial conduct, which are suggested sometimes by somatic impulses and sometimes by the childish whims and fancies of old age. Delinquencies, outside of those connected with sexuality, are distinctly of the petty variety. The purloining of small objects, such as plants from a public garden, is characteristic. Much more serious are the sexual offences of the involutional period. These are notoriously perpetrated on children and may take the form of a mere contact of the genitals, or of attempted rape, or of exhibitionism—display of the genitals being usually to one child or a group of children. In looking over large groups of statistics, such as shown by Bresler and Wulffen, it is very instructive to note how the proportion of this type of offence grows rapidly during the sixth and seventh decades of life. Several possible explanations may be evoked. There is a breaking down of

social inhibitions as the result of decay in mental powers; there is in most cases the physiological sex impotence of age which renders normal sex relations impossible; and there is the peripheral irritation frequently arising from an enlarged prostate and from various pathological conditions of the genito-urinary tract. Occasionally one comes to know of sex offences by women of advanced age, but these must be exceedingly rare, and, in the main, the delinquencies of that sex during the involutional period are uncommon and very petty.

The treatment of this type of offender is by no means hopeless. Many old people can be spurred on to the exercise of will power when the seriousness of their misdemeanors is called to their attention either by members of their family or officers of the law. Study of the variability from time to time of the power of mental functions during old age may be of aid in considering the methods of treatment to pursue. The pursuance of any occupation to the point of exhaustion must be avoided and if the patient be a person of education his thoughts can be directed along strengthening lines by recourse to good literature. A removal of irritating local conditions is highly important and probably serves for moral as well as physical therapeusis. An operation on the prostate gland would save many a family disgrace, although one may be skeptical about the moral benefits recorded in certain cases being entirely due to the physical changes brought about. Occasionally it will be found necessary to place these patients in a home or an asylum for the aged, but if there is a considerate and affectionate family, as there frequently is, much can be done to prevent further offences by judicious medical and surgical measures—the mental and moral side of the problem being kept always in mind. It seems very unfair to incarcerate, as is sometimes done, in his period of senility, a man of hitherto good reputation, when medical attention would cure the tendency to antisocial conduct.

Hysteria.—The proportionate number of cases of hysteria seen in court work is hardly as great as one could expect from observing the peculiar behavior of hystericals in a neurological clinic. The type of social difficulties, although troublesome enough, which hystericals get into does not so very often lead them into the hands of the police. They steal a little, particularly from the down-town shops; they run away from home occasionally; they get into some sex difficulties; they make a show of attempting suicide, and they make many false accusations. With the exception of the latter offence, on the whole their delinquencies are more or less petty and abortive. There is no well-carried-out scheme, as a rule; their actions are childish and lack even the foresight that an occasional high-grade, feeble-minded individual will show.

It is plain that the diagnosis must be made by ordinary neurological methods, and that once made, the prognosis must be based upon the notorious instability of this condition. The treatment should be, of course, that which belongs to the psychosis itself, and is elsewhere dealt with in this work. What should be, however, and what can be done are, one finds in working with delinquents quite different things.

There is hardly any mental condition connected with delinquency which needs such individual adjustment as hysteria. Sometimes we have known cases to be quite successfully handled through the ordinary discipline of a reformatory. And then again reformatory treatment has seemed to cause so much mental irritation that it was very evidently undesirable. With what we know about the psychogenetic factors of hysteria it seems quite unlikely that this class of delinquents can be judged by any set formula. A strong reason for treating them by the methods which promise the most, and not in any offhand way, is the fact that they, once started on a career of delinquency, are apt to keep up the game with variations and cause the expenditure of much time and trouble. We know of a certain single trial of a girl of this type, a thief and an accuser of others, which ultimately cost the State about $15,000. The importance of relating impartial medicopsychological study to court work is through such instances made very obvious.

Perhaps hystericals are most often, as delinquents, sources of disturbance on account of the complex situations which may arise as the result of their testimony. This subject is best discussed under the next heading.

Pathological Liars.—Although the morbid liars form no homogeneous group it seems best for this work to consider them under a special heading. In court work one finds some extravagant examples of continued and apparently aimless prevarication, but there results no scientific satisfaction nor therapeutic rationalism from considering them as a unique class. One discovers at times and perhaps most often an hysterical background for the symptom of pathological prevarication, but in other cases the fundamental difficulty is mental defect, now being high-grade feeble-mindedness, and now being sharply defined special mental incapacities. Then we have observed the curious phenomenon of pathological lying accompanied by a psychomotor condition which, as observed over several weeks, could be safely diagnosticated in no other way than as constitutional excitement. The quick flow of ideas could be controlled well enough for the making of temporarily coherent stories, but there were variations arising from day to day.

One is constrained to take a common-sense view of pathological lying, for even the elaborate and apparently unnecessary, and perhaps self-damaging prevarications, when analyzed and connected with their contextual origins can quite often be seen to partake of the nature of a psychical defence reaction. There is, even though it be indirect and remote, some reason for the lie being told. Used planfully or subconsciously, the lie may be developed to throw others off the scent, as it were, of evil occurrences in the life of the liar. If an hysteric commits an offence, such as the stealing of some goods from a store, it seems to be a natural tendency for her to manufacture a counterirritant to draw attention away from the plain fact of the theft. It may not be that the incidents of the story arise in direct expiation of the stealing, but it rather appears that the offender has been mixed up in some other affair of overweening importance.

Accusations may be made against various people, either of the same or the opposite sex, accusations most frequently along sex lines, and perhaps involving the accuser's own reputation. A situation similar to the following has been seen now by me a number of times. A girl is accused of stealing. She informs her friends, or the officers of the law, before the case comes to trial that some time previously she met an attractive woman on the train who invited her to her house, and while there she was given candy which produced sleep and she woke up after an hour or so—does not know at all what was done to her in the period of sleep, cannot explain it—thinks she might have been raped, thinks perhaps some operation was done. Often this story leads to an official investigation and the girl's own offence sinks into secondary importance, at least temporarily. Just what is alleged to have been perpetrated in any given case varies greatly according to the powers of imagination, and frequently the whole affair is so well worked up in the mind of the patient that she seems unable to believe, after frequent repetitions of her story, that the alleged affair did not really occur.

It would seem at once as if in origin these allegations were indirectly recriminatory and constituted a definite defence reaction. Another case of elaborate well-enacted lying by a young woman to a group of people she had never seen before, when analyzed and the preceding facts of her career known, was found to be after all just a way out of trouble. She had gotten into sex difficulties; she was of old a prevaricator in her own family circle; she had put herself in a disgraceful situation, and the complicated story evolved to strangers and persisted in, although proofs to the contrary were not long in coming, did offer some measure of protection, albeit in a very roundabout and foolish way. A boy we know, who, when he came home late, began at once in an excited way to signal to his deaf, dumb, and rather simple-minded mother the wonderful adventure he had always just been through, presented conduct calculated to answer the same ends although so much more consciously evolved. Some of the strangest phenomena of human conduct, embodying the grossest contradictions to normal sentiments and feelings, involving the cruelest accusations, even of murder against parents, or of incest, which led to great suffering and even long imprisonment, I have become acquainted with in the study of youthful accusers who were themselves delinquents.

The treatment of this phenomenon is the treatment of the mental state underlying the symptom. The moron or the epileptic who develops this unfortunate trait needs oversight. Cases suggesting hysteria, whether or not showing full-fledged symptoms or stigmata, should be adequately treated by an analysis of the underlying experiences possibly related to the development of prevarication and then by a patient and thorough-going method of reëducation of the will and the ethical sense

Temporary Psychoses.—We have had experience with a considerable number of cases of children under the age of puberty whose delinquent acts have been curious, extravagant, and often entail considerable suffering to themselves as well as to their parents, and whose anti-

social attitude seemed to be based upon a temporary psychosis. The diagnosis of the latter has not been made alone by study of the erratic nature of their conduct, but also by observation of the peculiar results of mental tests and evidences of bewilderment in various ways, and finally by the fact that with removal of a probable cause, which may be either external or internal, there has been rapid betterment. It is true, to be sure, that although one finds personal physical irritants or finds causative factors in the environment one very frequently also comes to know about various weaknesses in heredity. It is no unusual thing in studying such a case to discover a minor degree of mental confusion, an unjustifiable lack of the power of self-orientation even for childhood, and especially poor control of mental processes as shown in some tests, others of which may be well done, however. Emotional disturbances are not very great, as a rule, although we have seen in one or two cases mental depression up to the point of melancholy.

One looks with suspicion upon the possible future history of such a case, but in the presence of the fact of an apparent complete restitution to normal under changed conditions we have felt justified in merely denominating these as cases of temporary psychosis. The old problem of stress versus strength must always be kept under consideration, both for diagnosis and treatment.

A badly nourished and poorly developed boy of eleven, who has been repeatedly a runaway and who has stolen a good deal, as seen on different occasions, always has an air of bewilderment as if the world were too much for him. He is anything but vicious in appearance. He is very quiet and depressed in demeanor, and it is very difficult to get much response out of him. His general answer is that he does not know why he does these things, why he sleeps in out-of-the-way places and goes without his meals. This lad has been in institutions a couple of times, and is said there to have none of the depression and confusion which is so noticeable in his case when seen on the outside. He comes from atrociously poor environment. His mother is insane. He has an older brother who has been repeatedly arrested, and who, like him, is much below par on the physical side, but who does not show any of this mental aberration. The younger boy has many times insisted that he worries terribly on account of his mother, and even lies awake nights thinking about her. At present the boy appears happy and well in a reformatory for boys.

I have no doubt from the cases we have seen in which it has occurred, that unfortunate sex experiences do much to induce mental bewilderment, as well as antisocial behavior. The above boy, for instance, was assaulted by a man who was sent to the penitentiary for it.

Another type of temporary psychosis is apparently due to irritative physical conditions. Otitis media at times induces mental disturbance which is readily reflected in conduct. Head injuries as related to delinquency are discussed under another heading.

The indications for treatment of a case that gives hope of being a temporary mental disturbance are oftentimes perfectly clear. A few

weeks at a truant school or reformatory, followed by a return to the old environment, is not likely to effect a permanent cure, and, as a matter of fact, it rarely does, notwithstanding the fact that there is undoubted betterment of mental and moral conditions during the stay at the institution. The condition can frequently only be curatively met by prolonged treatment which shall include the best principles of physical and mental hygiene. A reformatory or industrial school which is organized to understandingly deal with such cases is just the place to which such an individual should be committed, in order that prolonged medical and educational measures may be followed up. No short term is going to strengthen the will or the mental processes sufficiently to enable the individual to successfully withstand the irritants and temptations of the old environment. Without a firm background of new thoughts and new impulses the suggestions which come flooding in to such a youngster after his release from a short commitment are overwhelming, and very frequently we find lead him repeatedly back to his old delinquencies. In fact, treatment, on account of these features, can easily be found to have economic as well as humanitarian aspects. It simply does not pay to segregate on the basis of a legal sentence without more understanding of the case and more provision for the future.

In our observation these unsatisfactory mental states which occur before puberty or adolescence are to be considered more refractory, as a rule, although we have seen exceptions, than those which are characteristic of the pubertal epoch. This is an important point in the consideration of treatment, because with the younger children a much longer period must be planned for.

Post-traumatic Psychoses.—Any observer who has dealt with large numbers of social offenders cannot but be impressed by the considerable number who previously suffered from injuries to the head. If a census were taken of the prison and reformatory population who have received severe head injuries, one feels sure it would be very much larger in proportion than such sufferers among the general public. We ourselves have observed a goodly number where concussion of the brain has been evidenced by a period of unconsciousness following injury, or where one finds distinct traces of an old fracture of the skull. After-symptoms may be an abnormal irritability, a general nervousness, sometimes a craving for stimulants, episodes of excitement, headaches of different types—in some present most of the time, in others only occasionally, and mostly complained of at the site of the injury. These offenders are easily upset by things which would not annoy an ordinary person and become violent at the slightest cause. Sometimes the violence is preceded by a period of drinking, and the drinking by a period of headache and nervousness. All of these may occur without evidence of Jacksonian or other post-traumatic epilepsy.

The delinquencies of these individuals vary greatly, but are mostly of the impulsive variety. We have heard time and again an expression of feeling from the sufferer that he would be better in an institution,

would be freer from the petty annoyances of the world, and freer from its temptations. There is sometimes a desire to lead a life apart from lights and noises and people.

There can be no doubt about the advantages of certain forms of treatment in these cases. A quiet life is most desirable, the freedom from the noises of a large city in certain cases is advantageous, alcohol must be absolutely interdicted, the use of stimulants of all kinds should be reduced to a minimum. A regular and hygienic life would undoubtedly bring about better results in behavior. So far as surgery is concerned it would seem distinctly worth while to have an exploratory operation in any case where there can be the slightest suspicion of depressed fracture, of an old clot, or of adhesion. Under the conditions of modern cranial surgery the danger is reduced to a minimum, while the discomforts of life which these people endure are frequently so intolerable that major measures are justified if thereby there can be offered any chance of betterment. It will be for surgeons and observers of further histories of cases to determine what results can be obtained by operation in these cases. We have been astonished time and again that there has been no surgical effort to improve the mental and moral condition of a number of chronic offenders we have seen who are sufferers from old head injuries.

Moral Insanity, Moral Imbecility, The Born Criminal, The Criminaloid, The Mattoid.—This conglomerate subtitle is indulged in for the sake of referring to various designations of criminal types which we ourselves purposely avoid. The terms themselves have been made familiar by several authors, but most of them through the works of Lombroso. The phrase "moral insanity" dates back to Prichard's *Treatise on Insanity*, published in 1835. Our immediate contention with regard to the use of any of these terms is that they do not cover nor adequately describe the fundamental psychical characteristics of the types of criminals represented. Here, we will say, is a feeble-minded person with stigmata and skull abnormalities and what not; under the stresses and temptations of ordinary life, under the influences of acquired vicious knowledge and habits, and under the inflamed and unrestrained impulses of the defective mind he commits various crimes. Similar individuals, brought up in institutions among their own kind do not become criminals. Primarily he is simply feeble-minded—only secondarily is he a criminal. We agree with numerous authors and observers on this and call attention to the fact that the question of criminality and degeneracy as it presents itself, say among Italian peasants, is not the criminality and degeneracy of America. The work of Boas and of Channing and Wisslar shows by exact methods the truth of this point on which several other workers have ventured an opinion through less careful studies. These authors demonstrate the breakdown of European theories of degeneracy as applied to our population. There are many considerations anent these points which we cannot go into here.

Our experience with the intensive study of young offenders has brought us much practical knowledge, and to our great surprise we have

never thus far been able to satisfy ourselves that we have found any of these people who are said to be completely defective or insane on the moral side alone. We counsel any who believe in the existence of such a class to make a complete medical and psychological study of cases and see how nearly all resolve themselves readily into this or that well-recognized class of mental defect or disease. But we agree with Anton, who in his valuable symposium monograph asserts that the consensus of opinion goes to show that there are mental disease processes and abnormal psychic developmental conditions, the major stress of which is shown in the realm of feelings and so affect by election the correlated activities of life.

The treatment of criminals who are sometimes classified under the above captions is simply the treatment of the class to which they fundamentally belong, be it defect or psychosis.

BORDERLINE TYPES

Constitutional Inferiority.—There is a very definite class of cases which can best be described under the caption of constitutional inferiority. The type as we see it is readily enough differentiated by the following considerations; the individual cannot be clearly classified under any of the recognized groups of the insanities or mental defects; on the other hand, there can be invariably found physical abnormalities together with a mental equipment which is not equal to the strain of ordinary social conditions. On the physical side the inferiority from the structural standpoint shows itself by such points as markedly delayed signs of puberty, infantile form of torso, weak and flabby muscles, or various stigmata of degeneration. From the functional standpoint we are likely to find such nervous disorders as tremors, facial and other tics, nystagmus, tendency toward headache, and occasional dizziness. We have very frequently obtained a history of enuresis continued all through the years of childhood. We should expect naturally that the delicate organs of the special senses would be especially prone to show signs of the inferiority, and that is what we do discover. Defective vision is very frequent. This is hardly the place to go into the etiology of the phenomena of constitutional inferiority, whether it is due to direct inheritance, antenatal toxins or malnutrition, or to that vague cause familial degeneracy, but it may be noted that in these cases one discovers not seldom defects of the teeth which are indicative of faulty antenatal conditions, while sometimes they are distinctly Hutchinsonian in type.

On the mental side these individuals show well-marked traits which are the direct cause of their coming under the ban of the law. The weakness of will displayed is most striking and can fairly be considered pathological. The way before them is ever paved with good intentions, their backward glances are ever darkened by regrets, but somehow many are the slips along the better way. It is not so much that two and

two cannot be put together in reckoning up the effects of bad behavior, but the trouble lies in not being able to inhibit the temptations and impulses which becloud the formulæ of good behavior. This lack of control is significant not only of the moral sphere, but also is found to some extent in the intellectual processes. Then in some of the cases deficiency of physical control finds expression in such functional troubles as stammering. I find in a number of case notes I have the remark "uncontrolled or uncontrollable impulses." It seems quite impossible for them to resist the idea of stealing, of running away from home, of playing truant, of indulging in sex affairs either alone or with others, of doing things the easiest way. One light-fingered fellow robbed mail boxes over and over again, and even after he had been twice committed for that offence, although he had never realized any gain from the procedure—doing all this and destroying hundreds of letters because an old offender had told him years ago that here was an easy method of getting something for nothing. The boy stated that sometimes he might be riding his bicycle without any thought of the matter in mind, when suddenly the sight of a mail box would bring on the gambling instinct and he would jump off and take another chance.

Moodiness and irritability are characteristic of this type, as might be expected. Violent outbursts of temper are encountered, but the effects of the outbreak are softened so far as actual harm done by the spirit of cowardice which is almost universal. This latter trait is what leads youngsters of this sort to practice teasing and cruelty on animals and other weaker children. The tearfulness of a really choice young adult specimen of the constitutional inferior offender type is nothing less than nauseating.

The results of tests for mental ability vary greatly in different individuals, but by the very definition of the class as we have given it even the upper limits of feeble-minded reactions are not included. In superficial ability at mechanical tests as well as those which require merely quick reactions, such as some of the verbal association tests, we may get responses well above the ordinary. However, in these individuals there are pretty sure to be defects in the powers of attention and continued effort. Some of them show irregularities of results at different times or in different kinds of mental work that are not at all usual to find in the normal and well balanced person. The significance of this may be that they have not profited by previous mental training in the manner of the normal-school-trained child, or the unevenness may be due to the effects of emotional inhibitions which control them.

It is only to be expected that these poorly equipped persons should succumb to the call for stimulants, which in youth are indulged in under the form of excessive amounts of tea and coffee and of cigarettes, the smoke of which is often inhaled. As they grow older alcoholic stimulants, of course, are used and sometimes drugs. No doubt some of this type finally wind up in the insane hospital, but many remain out and are continual sources of trouble to themselves and others. They lose jobs, run away from home, steal under slight temptation and lie tremen-

dously. What to do for them is always a problem, but under the steady treatment of institutional life they turn out best. There the fixed conditions call for little exercise of will power and judgment, and while they speak of their dissatisfactions and ambitions under those circumstances, their life is much better ordered than it is elsewhere. The varied temptations of city life form the other extreme and constitute the worst environment for them.

The Unstable.—Individuals who are excessively unstable in purpose, exhibiting many fluctuations of the will in spite of warnings, punishment, and in spite of a genuine desire to reform, constitute a group of delinquents particularly difficult to deal with. Frequently these offenders lie much in self extenuation, but at times they may be frank and acknowledge their weakness. As one fellow said to me, "Oh, I just guess I was born to be a scamp." This group belongs in the larger, somewhat indefinite class of psychopathic personalities. One often finds reason for their peculiarities in defective heredity, or in bad antenatal conditions. The type is to be distinguished from cases of constitutional inferiority by the fact that no congenital defects of importance are to be discovered, either physical or mental, unless it be the weakness of will. The latter may not appear as a major defect until after the years of childhood, and in that respect resemble Gowers' abiotrophic disorders. For the purposes of childhood life the powers of will were strong enough, but as time went on the more complex situations of social relationships proved too great to be efficiently met. The will proved not capable of steady effort and fluctuated more than is normal in individuals of the corresponding age. This, or else there may have been actual degeneration of powers of self-control as time went on. It is to be noted that many of these cases, too, as they get along in adolescence, begin the use of stimulants, indulging in alcohol as well as tobacco, and they are prone to sex excesses. In a number of individuals I have studied it has seemed clear that the natural aboulic tendency has been added to by these intoxicants and excesses and that succumbing to the temptation to steal resembles closely succumbing to the temptation to drink. The will is weak all along the line. A notable point about these cases is the good front of affection and reasonableness which they put up in their own home circle and toward those who may be supporting them or helping them out of their scrapes. It is true that some of these individuals have made fairly brilliant records in school or in college, but, as a rule, their defective will power has interfered with educational results.

Often these people are most sanguine about the future, always expecting something better to turn up, always expecting they can do better at the next time. Experience of the past means little, and it seems as if the sun were going to shine on their path as it never shone before.

The treatment in these cases is as unpromising as the treatment of a weak-willed drunkard. It always seems to the observer as if on account of the affection and native brightness displayed that there must be ultimate success. Indeed, over considerable periods things may be

better, but generally there are lapses even under the most advantageous conditions, and temptation is finally succumbed to and perhaps a new prison career entered upon. Of course, the greatest help is to be derived from the common-sense procedure of taking the offender as much as possible away from temptation. Ranch life, or forestry work, or naval life, or joining the army may be measures that help out very well. Under conditions of enforced discipline, or at a great distance from temptation, the individual may do well indeed, and many a good worker in the army or navy has been of this type before entrance. The feeling occasionally expressed against any offender being desirable for the service is not well taken if the individual is carefully selected.

Suggestive treatment is urged every now and again for all these social failures. Hypnosis for many years has had its advocates. No doubt these measures do help for a time—we have known of instances, but we have yet to know of any follow-up studies that show any great ultimate value for these cases in suggestion, whether applied as hypnosis or otherwise. The steady guidance of a strong companion may be a saving grace, and no doubt men have been redeemed by their wives, but one would hardly often advise such immolative therapeutics.

Impulsive Insanity.—Although under this designation we find in works on psychiatry considerable reference to criminalism, yet with the use of more intensive methods of study one is forced to conclude that, except in the rarest instances, the terminology is most unsatisfactory. Pyromaniacs, for instance, have frequently been found to be feeble-minded, and so-called kleptomania as studied by methods of psycho-analysis has such traits of origin that most of the cases can readily be ruled out of the classification of impulsive insanity. Epileptics and defectives and the insane may all have very definite morbid impulses, but when one classifies them under their proper heads and then eliminates those who have psychic traumas and mental conflicts and repressions in the background there are few cases left for classification under the special term, impulsive insanity.

We must insist here again on the great value of thorough-going studies of family and developmental history. The whole complexion of a case has frequently been changed by ascertainment of, for instance, encephalitis or epilepsy or markedly defective antenatal conditions.

INNER MENTAL CONFLICTS AND REPRESSIONS

Certainly one of the most interesting and valuable contributions on the causative factors of delinquency has been the discovery of the part which inner mental conflicts play in the production of delinquency. The findings announced from various sources are of great interest, both because of the important mental mechanisms which are thereby exposed and because of the optimism with which the outlook of the case may be viewed in the light of certain positive therapeutic experiences.

By inner conflicts one means the activity of certain ideas, or wishes, or wonderings, which seem to be at variance with social standards or communications and which are kept to one's self and fought inwardly and repressed to a greater or less extent. One need not be a complete Freudian nor take up with all the findings of the disciples of this Viennese psychologist in order to discover a great deal that is important in this study of mental repressions, particularly in regard to the background of certain cases of delinquency. Some writers, particularly Stekel, have endeavored to show by more or less thorough-going processes of psycho-analysis just what mental associations and repressions are at the bottom of a given career of delinquency, particularly stealing. The so-called kleptomaniac, according to this school, is the person who steals for the unformulated purpose of getting satisfaction for certain mental needs or excessive impulses. The definite acts, however, are substitute processes for long-ago desired reactions. The whole first idea has been changed, sublimated, with the establishment of certain so-called symbolisms. Without going farther into this field, many parts of which seem to us still *sub judice*, we refer the reader to the writings of Freud and his followers.

What we ourselves have been particularly interested in, and interested in, too, from a very practical standpoint, is the uncovering of a definite mental mechanism which has produced a strongly maintained attitude toward the world or has led to repeated delinquencies. Highly significant mental associations and experiences, making together with their emotional concomitants, a well-defined mental complex, are frequently not at all difficult to get at by a very moderate process of analysis of the directive energies of a young delinquent's mind. It is very likely, of course, that after the age of naïvete has passed and many other experiences of life have been superimposed that these early happenings and associations will be deeply covered up and difficult to bring to the surface. The changes which time brings about may also make these very first experiences fade as a cause from memory. The extensive process of psycho-analysis, which it is necessary to use in adults, may be explained in that way. The writer has not had sufficient experience with adult delinquents as seen in court to know to what extent these methods could be practically used, nor is he aware that they have been practised extensively anywhere, but it is quite evident that the time element would deter any very extensive use of them. The possibilities, limitations, and difficulties of such work have already been set forth by the many disciples as well as by the opponents of the Freudian school, but one finds the matter quite different with young delinquents.

What is really taking place in a child's mind who enters the path of delinquency from the above starting point can best be shown by a short recital of a case representing this type. A healthy, sturdy little girl of ten has been giving much trouble to her family for about three years. She has repeatedly stolen from home and elsewhere. She does not always come straight home from school; stays out sometimes until eight or nine o'clock. When asked where she has been she will not answer,

nor will she tell who are her companions. She has several times deliberately set things on fire at home, and except for the fortunate presence of others the house might have been burned up. Her family are very poor and she is the cause of much annoyance. They whip her, but that only increases the stubbornness, of which she has a great store. For hours together she will not answer a word to anyone, stands like a statue, and when whipped will only say, "You hurt me." Her hands have been tied, but even under that limitation she has run out of the house. The mother, a strong-minded immigrant, says she is beyond any control. They have threatened to send her away, but she says she does not care. She has borrowed money ostensibly for her mother and spent it herself; she told various people that her mother was dead. She is said to be very kind and good to other children. People who have gone into the house to help have found the child absolutely quiet and unresponsive.

One finds effective approach to this child, despite her reputation for sullenness, not so very difficult to achieve when sympathetic methods are used. She is backward in school, largely on account of recalcitrancy, for tests show her to have pretty fair native intelligence and ability. It was discovered in the first interview that there was something held back in her own mind, and it was only a matter of a few interviews to find that this repressed and heretofore uncommunicated affair is the direct cause of her delinquency. Years ago a little boy began making advances to her and telling her bad words of which she does not fully understand the meaning. Then on one occasion she saw another little girl do some strange things on a bed with a couple of boys, one of whom is this Jimmy who has repeatedly spoken to her on the subject. It seems that she herself has always resisted his approaches and told no one. But these things and the words he said, they are always coming up in her mind and bothering her. This boy too is a little thief, and she has known many times of his taking things in the past. She dreams about him, and of her mother scolding him for the bad words he has just said to her when in the dream he was in their yard. These words come up in her mind, she says, all the time. In school they come up to her, and especially when she has missed a word in her lesson and the teacher has her go to the board and write the word that she has missed and she does not exactly know what is required. Then while she is thinking of the word to write all these bad words come right into her mind. "Those words make me feel as if someone was talking to me and I all the time think about him as if he done those things to me." When she did the last stealing she says she was "thinking about Jimmy and thinking that he did bad to me."

This is the way it goes, according to our experience, in many of these cases of the kleptomaniac variety. Stealing and illicit sex relations have been learned about at the same time and often from the same person. Generally sex advances have been completely repulsed, nothing has been said to parents, a very good front of modesty has been maintained, but there has been a great amount of wondering about these things

by day and by night. They are unexplained mysteries into which one would like to delve if it were right. The words and the images flash into the mind during all vacant mental intervals and there is the closest of association processes between thought of what the boy or girl said or did in sex ways and the thought of how they stole. We have very clear records on this point. The sex wonder and wish is repressed; the stealing is impulsively enacted.

By no means all of the cases of repressions and conflicts connected with delinquency are established on a background of sex affairs. Some striking instances are based on the problem of the offender's own parentage. Let any ordinarily sensitive boy or girl get an inkling that family relationships are not as they have been made to appear, that the world has been made up of lies in regard to this most important matter which involves the question of parental rights and duties and filial loves and obediences—let just an inkling of this arise and there may result a definite psychic trauma and the establishment of a thoroughly antisocial attitude.

We are convinced by much experience that the analysis of the beginning of many a delinquent career would bear good fruit if sympathetically entered into in this way. Parents are astonished to hear of the complicated conflict in their child's mind. If they are actively intelligent parents they can at once understand the value of the exploratory process by which the discovery has been made and will endeavor to bring the whole matter into the daylight and proceed along reëducative lines. The veil of mystery must be torn aside by them or others and every opportunity given for free communication on the points that are worrying these young minds. Without this intelligent action in the matter we note the fact that little can be accomplished and the delinquencies are continued in the old environment, or in changed surroundings, and the delinquents finally are committed to some institution. On the other hand, some of the most brilliant therapeutic successes I have ever witnessed in any field have resulted from the work of intelligent guardians, when the discovery of the difficulty has been followed up by sympathetic and constructive measures adapted to the individual case. Delinquent careers of several years' standing have in more than one case been almost instantly checked, with great resultant happiness to all concerned.

It is useless to lay down rules for treatment; individuals vary greatly in their needs. It is sufficient to say that treatment is a matter of shrewd common-sense. If a child has troubles at a given time of day, temptations or worries or impulses, or has them under the influence of a definite set of mental associations, or when in a certain place—these facts form the point of entrance where help may enter. The right companionship at the right moment, right explanation of the bothersome thoughts, bringing to the understanding that the given delinquency is really the result of a certain idea, filling up of vacant times or places in the mental life with healthy interests—all these are the guides to success.

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CHAPTER VI

IMMIGRATION AND THE MIXTURE OF RACES IN RELATION TO THE MENTAL HEALTH OF THE NATION

By THOMAS W. SALMON, M.D.

In every field of medicine we see today the tendency to look far beyond the individual in the search for conditions which determine resistance or susceptibility to disease. More especially in mental and nervous disorders, but also to a considerable extent in other ills, we have come to consider external and remote conditions as factors which often far outweigh those seeming to exert a direct influence. With such broad conceptions of the underlying causes of disease, a family, a community group, or an occupational class is quite as likely to serve as a unit for study as an individual. It is but a short step to the study of those larger groups which are constituted by races and nationalities, and, indeed, a review upon broad lines of the factors which have to do with the prevalence of mental and nervous diseases in this country would be strikingly incomplete without reference to immigration which, more than birth rates, mortality rates, or any other causes, determines the racial composition of our population. There is no other country in which immigration plays so large a part. No other country has ever had such a mighty and sustained flow of humanity as that which has transferred more than twenty-eight million people from Europe, Asia, and Africa to the United States since 1820. Every social and economic problem has been profoundly influenced by this great tide, and it can be shown that not the least of its effects has been that exerted upon the public health. As immigration has shown no signs of diminishing, but, on the contrary, seems not to have reached its maximum, its effects upon the prevalence of mental and nervous diseases constitute something more than an interesting field for historical research.

Immigration to the United States provides the material for a vast experiment in eugenics. We know that, with mankind as with the lower animals, a fortunate cross may produce a new race of unusual vigor and efficiency. Although it is impossible to foretell the probable effect of crossing various races of men, there seem to be grounds for recognizing certain tentative conditions for success. These conditions have been summarized by W. C. D. and C. D. Whetham as follows: The component races must be virile and sound; they must not be too divergent; the new race must have a period of comparative isolation and inbreeding to fix its characters; occasional crossing with selected races of stock somewhat similar to the components should occur from

time to time. There are excellent examples of the production of great races when these conditions have existed and there are examples of the production of very inferior races when these conditions have been lacking.

It is our task to try to learn if the conditions for successful crossing are present in the vast experiment in progress in our own country. We must learn what the component races have been and in what proportions and how rapidly they have been added to the native racial stocks. We must ascertain the results of those steps in the experiments which have already been completed and we must examine the data available to discover with what success or promise of success those steps now in progress are being carried on. This is the broadest aspect of our question, but there are more immediate effects of immigration upon the mental health of our population to be considered which do not depend at all upon racial amalgamation. The mere conditions of immigration and the mere mixture of different races in our communities create situations, some of them favorable and some unfavorable to the prevalence of mental and nervous disase. The industrial and social changes which result from the introduction of a million workers from foreign lands every year profoundly affect the problems in which we are especially interested.

It is impossible to discuss any phase of immigration profitably without gaining some idea of its past and present causes and obtaining a clear conception of those radical changes which have lately given it a new significance. In order to gain such a view it seems desirable to consider immigration in two different historical periods.

Colonization and Immigration.—It has become a hackneyed expression that we are "a nation of immigrants." Discussion of immigration questions is usually introduced by the statements that our forefathers were immigrants and the children of immigrants, that the century following the Colonial period saw only new generations coming to join their kinsmen, that immigrants drove back the Indians and peopled the West, and that we are indebted chiefly to immigrants for our present industrial and commercial greatness. For the most part these statements are true and it is difficult to overstate the debt which this country owes to immigrants. It is, however, a very serious error to conceive of present immigration as simply a continuation of that movement, inspired by intense longing for personal liberty and determination to find it, even at the cost of danger and privation, which transferred a part of the civilization of the Old World to the New in the Colonial period and in the years following the Revolutionary War. Such a conception has always colored discussion of immigration, and it influences our treatment of the grave problems which have arisen in recent years. It seems to be the firm belief of those who have not studied immigration closely or dealt at first hand with matters into which immigration enters largely that thirst for liberty and desire for larger opportunities for the cultivation of personal ideals have always been the prime forces in inducing immigration to this country. This belief has proved a

useful tool in the hands of those who oppose any regulation of immigration or the adoption of any systematic plan for the selection of immigrants, and its wide acceptance shows how desirable it is to appreciate the difference between immigration and colonization and to examine carefully all the changes which have taken place in the causes and sources of immigration.

There has been no such continuity in the causes of immigration to the United States as this belief implies. The spirit of colonization, longing for liberty and flight from persecution have been responsible for large immigration at periods much later than that of the early settlement of America; and many immigrants passing through Ellis Island at the present time are inspired by the purposes of the pioneer and the frontiersman of earlier days, but we must recognize the fact that a very large number of those coming in recent years have been lured by purely economic attractions. Far from seeking larger political rights, many immigrants coming at the present time are quite ignorant of the simplest facts regarding the governments under which they lived in Europe.

Although, as has been said, there are undoubted colonists among those coming at the present time, and although there were immigrants among arrivals prior to 1870, that year may be taken very conveniently as the end of the period of colonization and the commencement of the period of immigration. Of course there was no such abrupt transformation but at that time the *causes* of immigration were undergoing marked changes, to result a little later in similar changes in the sources and composition of immigration.

IMMIGRATION FROM 1780 TO 1870

As John R. Commons has pointed out, the English, Dutch, Germans, and Scotch-Irish who constituted practically all arrivals in the Colonies up to the time of the Revolutionary War were closely akin and, centuries earlier, they had been one Germanic race in the forests surrounding the North Sea. They colonized the Atlantic seaboard, and the new-comers who helped form the thin line of civilization stretching toward the prairies were of the same race. The "immigrants" who came to this country for many years after the Revolutionary War were no less "colonists" than those who had preceded them.

The period which we have considered as that of continued colonization ended soon after the Civil War. During that period about 7,300,000 aliens arrived from Europe. It is not possible to learn the exact number of aliens who came to this country before 1820, for in that year the Government commenced to record their number and to ascertain some data regarding them. We know, however, that the population of the new Republic was not materially increased by immigration during the first few years following the Revolutionary War. During the ten years following 1820, 128,000 persons came from Europe, less than the number of arrivals at Ellis Island in a single month in the great "rush"

of 1907. The addition of these 128,000 aliens did not effect any noticeable racial or economic changes. Nearly all were of the same race as those who had come before and many were bound by ties of relationship as well as race to those with whom they settled.

During the next twenty years there was a steady rise in the yearly number of immigrants until the latter part of the period when the famine in Ireland in 1846 suddenly caused a large increase. This was the first illustration of an important new social law—that economic conditions in Europe bear a definite relation to the volume of immigration to America. It was many years later than another new social law was developed by immigration—that economic conditions in America bear a definite relation to the volume of immigration to America and also to the number of aliens in this country who return to their former homes in Europe. The exodus from Ireland was primarily to escape starvation on account of the failure of the potato crop. It was financed to a considerable extent by philanthropic individuals and organizations, but it was influenced, too, by the same motives which had inspired earlier immigration, for there can be no doubt that the misgovernment and neglect responsible for the famine and for the rebellion of 1848 had much to do with the enormous immigration from Ireland which commenced at that time and continued for many years.

In 1848 revolutionary movements in Germany brought about the first marked influx of Germans and in the next six years large immigration from that country and the continued flow from Ireland resulted in a yearly average of nearly 300,000. After 1854 immigration declined sharply until by the commencement of the Civil War the small volume existing before the rise in Irish and German immigration was reached again. During the last two years of the Civil War and in the years immediately following the war there was another steady rise in immigration, and by 1869 it again reached 350,000 a year.

Effects of Immigration from 1780 to 1870.—We have seen that during the ninety years from the ending of the Revolutionary War to 1870 about 7,300,000 immigrants came to this country. Although this number was exceeded by the number of arrivals during the eight years from 1904 to 1911, the proportion of immigrants to the population of this country was greater in the earlier period. This is offset, however, by the fact that the population to which later immigration has been added is composed very largely of children of earlier immigrants. Since 1890 the population has been pretty completely "saturated" with the foreign-born and children of foreign parentage, and it has been to this saturated population that recent immigrants have been added.

It is possible to simplify greatly our problem of determining the effects of immigration upon the mixture and amalgamation of races in this country and tracing some of the relatives of immigration to the prevalence of mental diseases if we consider first what these effects had been up to the end of the "period of continued colonization" as it may be called. In this way we shall be able to clear the ground for the study of conditions which have a more direct bearing upon present problems.

With the exception of the enormous increase in the proportion of Germans and Irish, the population in 1870 was composed of practically the same racial elements in practically the same proportions as in 1820. On account of the much earlier origin of immigration from Ireland and Germany it is possible to consider some of the effects of this immigration before considering the elements which have been added during recent years.

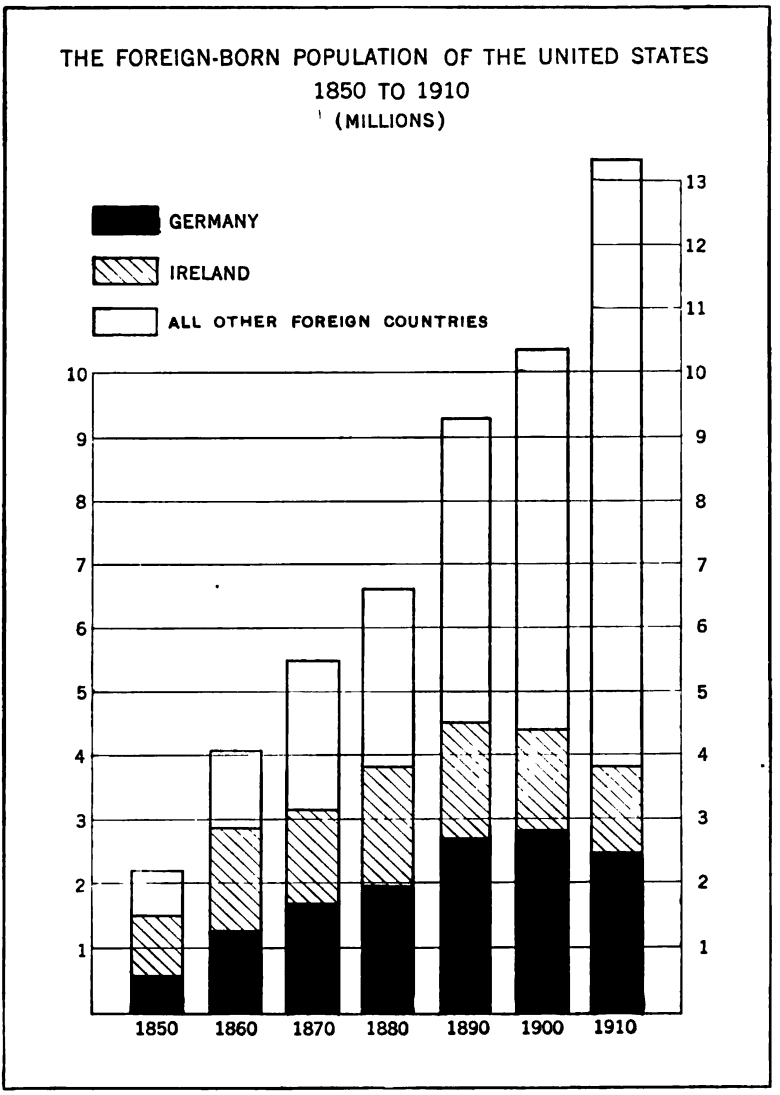
German Immigration.—There can be no doubt that the assimilation of Germans has been complete and satisfactory. Their amalgamation with the races already represented in this country has been fairly complete, but between even such similar racial elements as Germans and the Colonial stocks there has been that interesting retardation of complete amalgamation through intermarriage which has been observed in other countries where different races have mingled. In the case of Germans in America amalgamation has depended in considerable measure upon the proportion of the general population constituted by the new component. In localities where Germans settled in small numbers amalgamation has been complete, and apparently there has been no hesitancy on the part of either the native-born or of the new-comers to mix their blood. In localities where Germans have been so numerous as to constitute the larger part of the population the tendency has been observed for Germans to choose German husbands and wives, and this tendency seems to have been quite as well marked among the native-born children of German parentage as among the immigrants themselves. This is an illustration of a law of racial amalgamation; that if new components are added too rapidly or outnumber the native stocks, amalgamation will be retarded.

It seems desirable to define the terms *mixture*, *assimilation*, and *amalgamation* as used in reference to immigration, for a rather special meaning attaches to each. *Mixture*, in reference to races, has much the same meaning as in chemistry—the ingredients remain separate and independent no matter how thoroughly commingled. Mixture, of course, takes place upon the arrival of the new racial components. It is the first step in our experiment and the only inevitable one. By *assimilation* we mean the process by which the varying racial components become alike in dress, speech, manners, habits of thought, morals, and ideals. Assimilation may take place quite independently of *amalgamation*, by which we mean the complete fusing of different races by intermarriage. Mixture takes place immediately, assimilation may take place in a few years when all conditions are especially favorable, but even partial amalgamation must require at least one generation.

Germans soon became prominent in all industrial fields, and they brought with them many new forms of industry which contributed very greatly to the prosperity of the country. More than has been the case with any other immigrant race, the Germans coming to this country have been fairly representative of the entire race. Most other races, particularly in recent immigration, have been represented by those lowest in the economic scale; the prevalence of illiteracy (one measure

of social and economic station) has always been higher among immigrants than in the general population of the countries from which they came. In the case of the Germans, immigration in the early days was

FIG. 34



largely influenced by political difficulties, and men of education found the conditions following the Revolution of 1848 especially unendurable.

Irish Immigration.—Irish immigrants have had the qualities most valuable in settlers and immigrants. A cheerful optimism, capacity

for hardship, and abundant courage have eased the lot of the Irish immigrants in their darkest days, and the same traits have made their union with other races very desirable. Assimilation was rapid, but intermarriage with native stocks in the second generation has not been quite as general as with Germans in spite of the advantage of a common language. Until recent years the Irish constituted an enormous proportion of the Catholics in the United States, and religious obstacles have interfered somewhat with amalgamation through marriage.

Although the total number of Irish who have come to the United States is nearly as great as the number of Germans, there is a much smaller number of natives of Ireland and persons of Irish descent in this country at the present time. Fig. 34 shows the number of Germans and Irish enumerated at each census from 1850. Since the census of 1900 a decline of 16.3 per cent. has occurred in the number of natives of Ireland enumerated and of 11.2 per cent in the number of natives of Germany. It is seen that the number of Germans passed that of Irish in 1870, and that in 1910 there were nearly 1.8 times as many natives of Germany in this country. The fact that Irish immigration commenced to decline earlier than German immigration is partly responsible for this and for the smaller number of native-born persons of Irish parentage, but two other factors have been the higher general death rate and the very high infantile mortality among the Irish. A higher birth rate and the prevalence of earlier marriage have not been sufficient to counteract these death rates.

A few new industries were introduced by the Irish, but their greatest contribution to the prosperity of the country has been the efficiency, pluck, and hardiness of the Irish laborer. It has been said that no other race could have built the transcontinental railroads.

African Immigration.—The immigration of negroes to America, which was practically completed more than fifty years ago, is a subject far outside the scope of this chapter. The negro question has been fully discussed by others in all its relations, including its relation to the public health, and there are practically no features in common between this question and present immigration problems.

Political Effects of Immigration Prior to 1870.—The most striking effects of early Irish and German immigration were political ones. Long before the close of this period there was violent agitation for the restriction of immigration. There can be no doubt that religious prejudice and industrial competition were the chief factors in the opposition to immigration which manifested itself in the "Know-Nothing" movement which reached its height with the nomination of a candidate for the Presidency in 1856. The advent of the great issues which culminated in the Civil War effaced interest in Know-Nothingism and the narrow prejudices upon which it was founded were profoundly affected by the common hardships of the war, in which a large proportion of recent immigrants bore a gallant part.

The most serious effect of that movement is that it still influences our consideration of immigration problems. To this day those who

seek to devise scientific standards for the regulation of immigration, in accordance with our undoubted right to select immigrants with reference to the welfare of our own country, have to bear the heavy handicap of having their motives questioned and being coupled with the bigoted founders of the Know-Nothing movement.

The Effects of Irish and German Immigration upon the Public Health.—Although immigration prior to 1870 seems to have been without other serious ill effects, it had a very decided bearing upon medical questions. Even at a very early period unscrupulous public officials in Europe, realizing that the new tide of immigration to America might be used to shift some of their burdens, made it a practice to ship insane and mentally defective persons and paupers to this country. As early as 1824 an attempt was made to stop this practice by passing a law in New York requiring transportation companies to support passengers who become a public charge or to return them to their former homes. This effort, which failed, was due partly to the large number of immigrants who arrived ill from the unhygienic conditions of early transatlantic travel, but it was attempted chiefly on account of the practice of shipping to America the insane and those dependent for other causes. The tendency to unload undesirables upon other countries is evident at the present time and nearly all British colonies have had to protect themselves against the mother country by enacting laws regulating immigration.

It is undoubtedly true that there are mental defectives in our public institutions now who are the descendants of those deported to this country prior to 1870. Such effects of immigration are incidental, and their control is entirely within our power at any time that we choose to exercise it. Had the present immigration law been in effect, with an efficient inspection for mental diseases and defects, the head of the famous "Jukes" family would have been excluded and his return would have transferred interest in his long list of descendants to the authorities of the jails, hospitals, and almshouses of Holland. Many a "Juke," whose progeny were as numerous but who found no chronicler, must have accompanied the early tide of immigration.

Another striking incidental effect of early immigration upon the public health was the occurrence of severe epidemics of typhus fever, cholera, and smallpox, which resulted from imperfect maritime quarantine and defective ship sanitation.

In spite of these unfavorable effects of early immigration, it has been shown by several writers that immigrants of those days were usually the equals and often the superiors physically of those born in this country. They were excellent types of their races, and except for that dislike which was the outgrowth of religious prejudice and industrial competition they were held in such high esteem that immigrants of the present time profit by their reputation.

It is undoubtedly true that mental disease was more prevalent among the Irish and Germans who came to this country prior to 1870 than among the native population. The statistics for this period which

are available do not enable us to estimate the effects of age, occupation, social conditions and other factors, and so it will never be possible to make satisfactory comparisons between the incidence of mental diseases among the Irish and Germans who came to this country prior to 1870 and the incidence of mental diseases among the races of the "new immigration." At that time institutional care was provided for only a small proportion of all insane persons. Such institutional care as was available was naturally afforded by preference to those with the more acute psychoses and those less likely to be cared for at home. Poverty is one condition which determines the feasibility of caring for a psychotic person at home, and conditions such as this may have been partly responsible for the disproportion between the number of native-born and foreign-born patients admitted to institutions for mental disease. At the present time institution care is provided for a very large proportion of all recognized cases of insanity, and statistics are available which make it possible to study the prevalence of mental diseases with reference to race.

Dr. G. H. Kirby, Clinical Director of Psychiatry, at the Manhattan State Hospital, tabulated the psychoses present in 1403 patients admitted during the year ended September 30, 1908. He included the native-born of foreign parentage with the foreign-born and he considered race, not nationality. Horatio M. Pollock, statistician for the New York State Hospital Commission, has recently completed a study of the 5700 first admissions to all New York State Hospitals during the year ended September 30, 1911. A special bulletin giving the nativity of the foreign-born population of New York State was issued May 13, 1912, by the United States Census Bureau. With these data it is possible to summarize the prevalence of pyschoses among the Germans and Irish in New York as follows:

1. The admission rate per 100,000 population for Germans was 111 in 1911.

2. All but 8 per cent. of the Germans admitted had been in this country more than five years.

3. The psychoses which were more prevalent among the Germans than in the native stocks were general paresis, infective exhaustive psychoses, involution melancholia, undifferentiated depressions, paranoiac conditions, epileptic psychoses and constitutional inferiority, and psychoneuroses.

1. The admission rate per 100,000 population for Irish was 160 in 1911.

2. All but 7 per cent. of the Irish admitted had been in this country more than five years.

3. The psychoses which were more prevalent among the Irish than in the native stocks were senile psychoses and alcoholic psychoses.

4. The prevalence of alcoholic psychoses among the Irish was three times that in the native stocks.

5. Excluding alcoholic psychoses, the ratio of the insane to the population is lower among the Irish than among several other races;

including the alcoholic psychoses, the ratio is higher than in any other race—*one in* 84 *of all the natives of Ireland in New York State, February* 10, 1912, *being in a State Hospital for the Insane.*

6. No race having as many as fifty admissions to the New York Hospitals in 1911 had so small a proportion of admissions for general paresis as the Irish—a record not excelled by any group of population.

It must be remembered when considering the prevalence of psychoses among immigrants who came to this country prior to 1870 that during that period no attempt whatever was being made to exclude immigrants with mental diseases or defects or to deport those who became a public charge within the first few years after their arrival. Since 1891 there has been a law providing for the exclusion of mentally sick immigrants upon their arrival and for the deportation of those who became a public charge in our institutions shortly after their arrival. Although on account of inadequate facilities this law has not been very effectively enforced, a number of psychotic and mentally defective immigrants have been excluded since 1891, and transportation companies have been deterred from bringing a much larger number.

IMMIGRATION FROM 1870 TO THE PRESENT TIME

At the begining of this period Germans, English, and Irish continued to furnish about 70 per cent. of all arrivals. Canadian and Scandinavian immigration furnished nearly all the rest. Italy, which in less than thirty years was to lead all the others, furnished 2873, a shipload, in 1870, and in the same year Russia furnished only 1130, and Austria-Hungary, which was destined to be second only to Italy, furnished 4425. The most striking feature of this period, until the commencement of the Spanish-American War, was the increase in immigration from Germany in the early "eighties." During the five years from 1880 to 1885 nearly a million immigrants arrived from Germany. Industrial depression and the rise of militarism which bore so heavily upon the poor were responsible for this enormous immigration. From that time immigration from Germany rapidly declined, and in 1911 only 32,000 immigrants arrived from that country. Germans continued to come from Austria and from Russia, but the total number of immigrants of the German race who arrived in 1911 was only 66,000.

By 1897 immigration had fallen to 250,000. The year of the Spanish-American War saw an even smaller number, and then immigration began to increase by great leaps. The 1,000,000 mark was reached in 1905, and in 1907 the enormous immigration of 1,285,349 was reached. Striking as this sudden increase in the volume of immigration was, it was even more remarkable that the composition of immigration should be abruptly transformed. Immigration from Great Britain, Germany, and the Scandinavian countries had been rapidly declining, but races which had had no place in earlier immigration suddenly commenced to come in numbers far exceeding the "old immigration" at its flood.

PLATE VIII

Fig. 1

Cretin, aged Twenty-three Years.

Fig. 2

Mongolian, aged Eight Years.

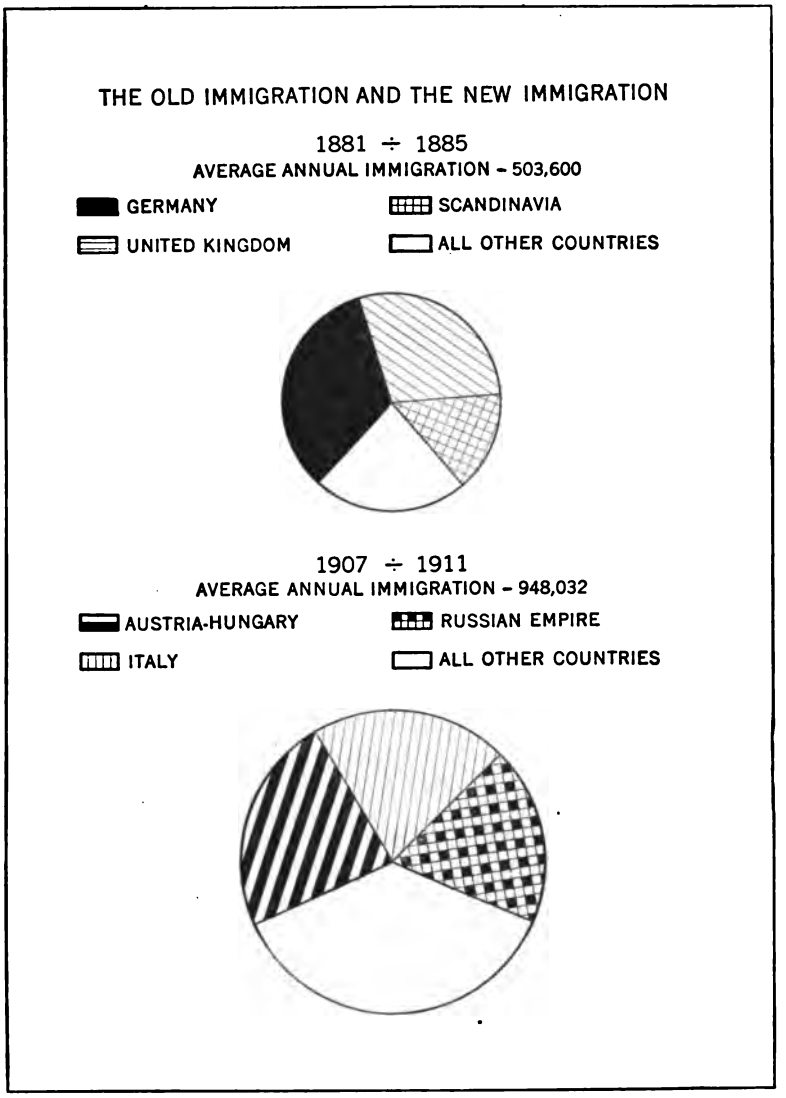
(Courtesy of Dr. A. C. Rogers, Faribault, Minnesota.)

Fig. 3

Mongolian Imbecile, aged Sixteen Years; mentally, Five Years.

The immigration which commenced just after the Spanish-American War is known as the "new immigration," and it was new in many ways. Only new and powerful impulses could originate such a great movement of humanity, and the volume of the tide which commenced to set in indicated the vast new sources of population being tapped.

FIG. 35



Composition of the "New Immigration."—The components of the "new immigration" can best be shown by Fig. 35. It is seen that the

new races entirely replaced the races of the old immigration. During 1907, the year of our greatest immigration, 81 per cent. of all immigrants from Europe were from Austria-Hungary, Bulgaria, Greece, Italy, Montenegro, Poland, Portugal, Roumania, Russia, Servia, Syria, and Turkey. In 1882 only 12.9 per cent. of the immigrants who came from Europe were from those countries, and 87.1 per cent. were from Belgium, Great Britain, Germany, the Netherlands, Scandinavian countries, and Switzerland.

The replacement of races cannot be shown as clearly as the replacement of nationalities because no records as to race were obtained by the Government prior to 1899. We know, however, regarding the old immigration that immigration from Ireland was nearly all Irish, that immigration from Germany was largely German, although Hebrews and Poles contributed a little in former years, and that immigration from Norway, Sweden, and Denmark was Scandinavian except for a sprinkling of Finns. In the new immigration the principal races are represented as shown in the following table:

RACES REPRESENTED IN IMMIGRATION FROM THE THREE POLITICAL DIVISIONS FURNISHING THE LARGEST NUMBER OF IMMIGRANTS IN THE YEAR ENDING JUNE 30, 1911.

Political division.	Slavic.[1]	Hebrew.	Italian.	All other races.	Total.
Russian Empire . . .	74,191	65,473	9	19,149	158,721
Austria-Hungary . . .	94,674	12,785	1,286	50,312	159,957
Italy	29	3	182,620	230	182,882

The question of race is a rather confused one. The school geographies made us familiar with five basic races: Caucasian, Ethiopian, Mongolian, Malay, and American—or white, black, yellow, brown, and red. It is in the multitude of subdivisions of the five basic races that we are especially interested in the study of immigration problems, for immigration at the present time is nearly all Caucasian. All our data must come from two sources—the reports of the United States Immigration Service and of the Census Bureau—and so it seems desirable, even at the cost of ethnological accuracy, to consider race in the terms adopted by those authorities. Plates VIII to XIV show characteristic types of different races in the new immigration. The following is the list of races by which immigrants are classified in the reports of the Commissioner-General of Immigration:

African (black).
Armenian.
Bohemian and Moravian (Czech).
Bulgarian, Servian, and Montenegrin.
Chinese.
Croatian and Slovenian.
Cuban.
Dalmatian, Bosnian, and Herzegovinian.
Dutch and Flemish.
East Indian.
English.
Finnish.
French.
German.
Greek.
Hebrew.
Irish.
Italian (north).

[1] More than half of "Slavic" immigration is Polish.

PLATE IX

Servian Gypsies.

PLATE X

A Russian-German Family.

Italian (south).
Japanese.
Korean.
Lithuanian.
Magyar.
Mexican.
Pacific Islander.
Polish.
Portuguese.
Roumanian.
Russian.
Ruthenian (Russniak).
Scandinavian (Norwegians, Danes, and Swedes).
Scotch.
Slovak.
Spanish.
Spanish-American.
Syrian.
Turkish.
Welsh.
West Indian (other than Cuban).
Other peoples.

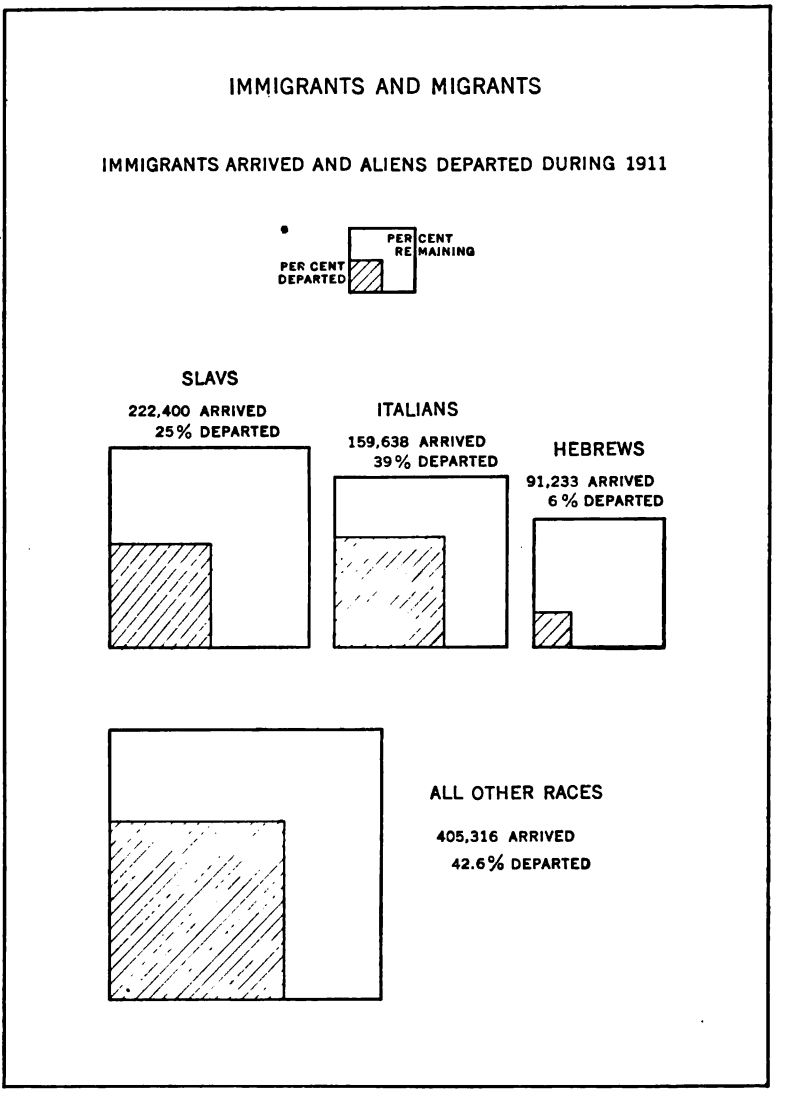
Some Features of the New Immigration.—It is not within the scope of this chapter to consider the political, social, or economic effects of the recent transformation in the character of immigration, but it is impossible to estimate the relation of the introduction of the races of the new immigration to the prevalence of mental diseases without considering some of the characteristics of these races. Some of these characteristics profoundly affect assimilation and amalgamation, while others have a direct effect upon the introduction of mentally sick and mentally defective aliens.

Labor Migrations.—One of the chief differences between the new immigration and the old is that many of the immigrants coming at the present time are not settlers. It was rare for the representatives of the old immigration to return from America to their former homes. Ties were generally completely broken when immigrants left for this country, whole families came together far more frequently than is the case now, and the intention of making a permanent home in this country was firmly fixed in the minds of all. With the new immigration it is different. It is the exception with all races but Hebrews for immigrants to come here with the intention of remaining. Many do remain for various reasons, but such a decision is usually influenced by considerations which arise after their arrival in this country. The purpose of the old immigration was to find homes; of the new immigration it is to find work. Fig. 36 shows the number of aliens departing in 1911 for Europe compared with the whole number of arrivals. With Hebrews, it is seen, the number of aliens departing was only 6 per cent. of the number of arrivals. Accurate information as to the outward passenger movement was not available prior to 1908, but it is believed that less than 10 per cent. of all immigrants returned during the era of the old immigration.

One has only to visit the steerage of an outgoing steamship to learn some of the causes of the homeward movement. Success and failure are the two chief motives for return to live permanently in Europe. A large number of departing aliens are taking advantage of unfavorable labor conditions to return. In many cases the cost of the return passage and the expense of living in Europe during the winter months are less than the expenses of living in this country during the same period. Such immigrants are quite as likely to turn toward the Argentine, Cape Colony, or Manchuria in their next quest for work.

Some immigrants who are ill or in distress for other causes are returned by foreign consuls and many more by the various foreign benevolent societies. The number of such passengers accepted is arbitrarily regu-

FIG. 36



lated by the steamship companies, and there can be no more sordid exhibition than the callousness displayed by foreign steamship companies in rejecting the sick and disabled poor of their own nationality who

apply for passage for their native lands. There are a limited number of berths available in the steerage hospital compartments, and, as the laws of several countries, notably Italy, require separate hospital accommodation for passengers with tuberculosis, most of the berths available are usually occupied by such invalids. Provision must be reserved for cases of acute illness developing during the return voyage, and so the scanty accommodations for sick steerage passengers are soon taken. Other applicants are rejected or are received in the open steerage, where they receive no different attention or food than the well. This matter has an especial bearing upon the return of the insane, for it has been the practice of the foreign steamship lines to reject nearly all insane passengers, giving the grossly insufficient accommodations to classes of the sick whose care involves less responsibility. In many cases the acceptance of passengers with psychoses is forbidden by representatives of foreign governments detailed to such ships. Thus the labor migrations which form so large a part of the new immigration result in the permanent exile in this country of large numbers of the insane and those ill from other causes. The wounded in the industrial conflicts are left upon the battle-field for us to care for; the victors often return to Europe with the fruits of their victory.

Congregation in Cities.—Another characteristic of the new immigration which has a bearing upon public health problems is the tendency to congregate in the cities. The old immigration was diffused through many States and a very large proportion of immigrants took up agricultural pursuits. With the new immigration the reverse is true, in spite of the fact that most of the immigrants coming at the present time have lived in rural communities in Europe. This sudden transplantation of races from the country to the city often results disastrously, for it must be remembered that the immigrant is usually forced by his poverty to live in the most congested parts of the city, and, wholly without preparation, he is exposed to the severest stress of city life. It is certain that this unsuitable environment has much to do with the high prevalence of mental diseases among recent immigrants.

Syphilis among Immigrants.—The proportion of males is much higher in all races of the new immigration except Hebrews than it was in the old immigration. A little more than half the males over fourteen years of age in the principal races of the new immigration are married and, excepting Hebrews, three-fourths of the married men have left their wives in Europe. Thus it is apparent that nearly 85 per cent. of all the males of the Slavic and Italian races living in the United States are single or are married men living here apart from their wives. This has resulted in conditions which have a very definite bearing upon the prevalence of venereal diseases. Syphilis is practically unknown among immigrants coming at the present time. It is, of course, impossible to detect all cases of syphilis or perhaps the greater number of them in the medical inspection at ports of entry, but only 10 cases of syphilis were detected at Ellis Island in 1911 in 749,642 aliens examined. As a result of the opportunities for infection in American cities and the

great proportion among immigrants of unmarried men and married men living singly, syphilis is frequently contracted during the first year in this country. Antonio Stella, in a very valuable paper on "The Effect of Urban Congestion on Italian Women and Children," says "the death rate from venereal disease among persons under forty-five years of age in the registration area of the United States was higher for Italians than for any other element in the whole population." By the time the wives or the girls to whom young immigrants are engaged arrive it is too often the case that the husband is infected with syphilis and he conveys the infection to his wife. And so, although syphilis is very rare among immigrants from the agricultural districts in Italy, 26.1 per cent. of all the male Italians admitted to the New York State Hospitals in 1911 had general paresis, and this psychosis was present in 6.4 per cent. of the Italian women admitted. This is an incidence of general paresis much higher than in the native population, and it is fair to assume that it indicates a greater incidence of syphilis among Italians who came here only a few years ago free from that disease than that which exists in a native population whose lives have been spent in New York City. It is doubtful if anywhere else can be found a more rapid syphilization of a people than this. This is only one illustration of the unfavorable effects exerted by city life upon immigrants from agricultural districts, and it also illustrates one danger to be considered in the labor migrations of the new immigration. Among Hebrews who bring their wives with them, intending to remain, but who also congregate in the cities, general paresis is less prevalent than among the native population.

Illiteracy.—The education of the races of the new immigration is far inferior to that of the old immigration. More than a third of immigrants over fourteen years of age who are coming at the present time are unable to read or write. Less than 2 per cent. of the adults of the old immigration were illiterate. It can be freely granted that such prevalence of illiteracy is an indictment of those governments which have so shamefully neglected the education of their laboring classes, and that illiteracy is not necessarily an indication of mental incapacity, but at the same time the fact must be recognized that illiteracy is a serious obstacle to the assimilation and amalgamation of immigrant races. It is responsible, more than any other factor, for the concentration of immigrants in the alien colonies of our cities. The necessity of communicating by word of mouth deters many immigrants from seeking work in sparsely settled communities where they are unlikely to fall in with their countrymen. It makes the acquisition of our language more difficult, it prevents naturalization (as ability to read is now a requirement of applicants for citizenship), and it is a decided bar to amalgamation, as it reduces the chance of marriage with representatives of the native stocks, except in the case of natives who are themselves illiterate, and it has been found that illiteracy in the native white population is very often associated with mental defect or inferiority.

PLATE XI

Slovenes.

The Role of the Steamship Companies in the New Immigration.—The old immigration was a much more natural process than the new immigration. Natives of Germany, Ireland, and Scandinavia found political, social, or economic conditions at home unendurable, and they came to this country with their families, determined to lead their lives in the New World. The importunities of steamship companies would have had little effect in the formation of this great decision. With the purely economic motives which govern by far the larger part of the new immigration, glowing accounts of high wages, unfailing work, and other advantages have a very marked effect. For many it does not mean relinquishment of citizenship, transplantation of the home or severance of ties to emigrate to America. The Immigration Commission found that, contrary to the general belief in this country, emigration is by no means an economic necessity at the present time in most countries in Europe. This Commission, as a result of studies undertaken in Europe, concluded that "with comparatively few exceptions the emigrant of today is essentially a seller of labor seeking a more favorable market." The part of the steamship company in promoting immigration under such conditions is a very powerful one. When steamship companies are charged with making false statements as to labor conditions in this country or other matters the reply is usually made that if this is done it is by entirely unauthorized subagents in the villages of eastern and southeastern Europe. It was stated to the Immigration Commission that two steamship companies had "five or six thousand ticket agents in Galicia alone." It was the opinion of the Commission that the provision of the United States Immigration Law prohibiting such false representations is "persistently and continuously violated."

At every stage of the immigrant's journey to this country precautions for his health and welfare are neglected by the steamship companies. It required the imposition of a fine of $100 for each offence to deter them from bringing cases of dangerous contagious disease, the existence of which "could have been detected by a competent medical examination at the ports of embarkation," in the open steerage, and even this procedure has been only partially successful. It is the rule for cases of scarlet fever, measles, and other contagious diseases to be permitted to mingle on steamships or to be segregated in a single compartment. A great number of cases of mixed infections, with a very high mortality, is the usual result. Even the provisions of our "passenger act" of thirty years ago, which are recognized to be inadequate and far below the requirements of modern hygiene, are persistently violated by the steamship companies. Every attempt to better the condition of steerage passengers is vigorously resisted, and every attempt to secure more effective legislation for the protection of the health of immigrants or for the exclusion of the mentally or physically diseased has met with their opposition. In short, the activities of the steamship companies, with reference to immigration, have been devoted to bringing as many diseased immigrants as can secure admission; to hindering effective medical examination; to circumventing present laws as much as pos-

sible and uniformly opposing any new requirements for the health and safety of steerage passengers; to conducting a campaign of publicity, in which misrepresentation of facts is a large element, and to obstructing in every way possible legislation for the exclusion of undesirable immigrants or for the return of aliens who become admitted to our public institutions.

It seems necessary to describe the position taken by steamship companies, for it is earnestly believed by the writer that their attitude has a very marked influence upon immigration, expecially in its relations to the public health, and that this aspect has not been fully realized by the public generally. In any measures which may be undertaken in the future for the control of unfavorable or dangerous immigration the immigrant-carrying steamship lines will be found the most powerful factor to be reckoned with, and it seems worth while to emphasize the fact. That a few steamship companies do not engage in these practices only shows that they could be abandoned by all.

Amalgamation of the Races of the New Immigration.—A number of writers, one of the most earnest of whom is H. S. Chamberlain, are insisting upon the paramount importance of *race* in determining personal and national character and efficiency. Although the medical aspects of this question have received inadequate attention, we know that the influence of race upon the susceptibility to disease is very great. This is particularly true of mental diseases, for if racial characteristics profoundly affect political, social, and religious ideals we must look for a similar influence upon the individual make-up which so largely determines trends in mental disease. All those who are familiar with mental diseases among the Japanese in California testify to the remarkable tendency to suicide in that race, not only in depressed conditions but in conditions in which suicidal tendencies, in other races, are not frequent. This is in accordance with the general attitude of the Japanese toward self-destruction. The strong tendency to delusionary trends of a persecutory nature in West Indian negroes, the frequency with which we find hidden sexual complexes among Hebrews and the remarkable prevalence of mutism among Poles, even in psychoses in which mutism is not a common symptom, are familiar examples of the influence of racial traits upon mental diseases. Prescott Hall says: "The racial effects of immigration are more far-reaching than all others. The Government, the State, society, industry, the political parties, social and political ideals—all are concepts and conventions created by individual men; and when individuals change these change with them."

This is true in health and it is equally true in disease, for it is certain that those strong, vague undercurrents of feeling which have so profound an influence upon our thoughts and actions are often only the expression of racial instincts.

The new immigration has raised most important racial issues in this country, where we already had a race question more difficult than that possessed by any other country, but the importance of these issues is not reflected in popular interest in the subject. We have the scantiest

literature regarding it and there are no adequate investigations under way to establish even the most elementary facts regarding the conditions of racial amalgamation. For this reason we are obliged to content ourselves with consideration of factors which *may* influence amalgamation; there is no trustworthy information as to what has actually taken place.

As has been shown, the races which colonized this country were closely akin; they had arisen from fortunate crossings, their racial characteristics had been fixed by periods of inbreeding, they had lived for several centuries in suitable environments, and it has often been said that they constituted the best racial stocks in Europe. Colonization and early immigration were effected by representatives of the same races and the first new racial element that, which was contributed by the great movement of population from Germany, was of the same basic stock. Amalgamation was inevitable, if, indeed it is proper to use this term when considering the reassembling of different branches of the Germanic races. The Irish were of different but not greatly dissimilar racial origin and they had lived for centuries in close relations with one of the colonial racial stocks, speaking the same language and frequently intermarrying. Assimilation had already been accomplished, on the other side of the Atlantic, and conditions for amalgamation here were most favorable.

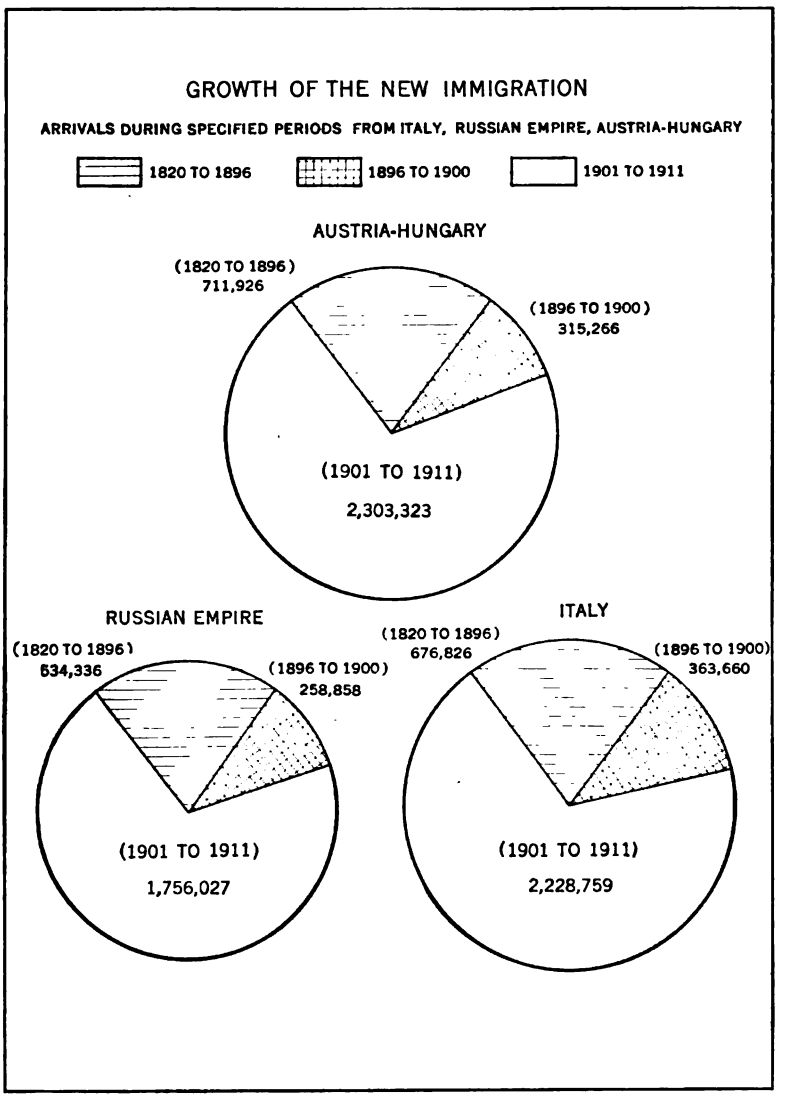
Irish and German immigration are, however, of the past. A rapidly accelerating decline in the absolute as well as the relative number of Irish and Germans in the United States is under way. Consideration of the amalgamation of the immigrant races may be limited, therefore, to the new immigration. The chief races of the new immigration are Slavic (30 per cent.), Italian (26 per cent.), and Hebrew (15 per cent.). The balance is made up of a large variety of other races. In order of the number of immigrants contributed the principal ones are Greek, Magyar, Mexican, Spanish, African (negroes), Syrian, Japanese, and Armenian. No other race than these furnishes as many as 3000 immigrants annually.

These are the ingredients which the new immigration is bringing to the "melting-pot." We have considered at some length the proportions in which the principal races are being added and the rapidity with which the process is taking place. We have now to determine, if possible, whether conditions for successful crossing exist, whether amalgamation is likely to take place at all and what the conditions are which, for better or for worse, will hasten or retard mixture of the blood of the native stocks of this country with that of the new-comers.

The new immigration has been of such recent origin that it is too early to find amalgamations of any of its elements even partially accomplished. It is necessary therefore to confine ourselves entirely to the consideration of factors which have not yet produced definite results. This view is not taken by most of those who discuss the subject, but it is necessary, in the interest of accuracy, to rob our subject of a great deal of the interest which is associated with positive assertions and definite

conclusions. Many who discuss immigration and amalgamation of the immigrant races mistake "symbiosis," to borrow a term from the bacteriologists, for amalgamation. It is possible for different peoples to dwell

FIG. 37



together very successfully and happily and yet not take a single step toward amalgamation.

The very recent origin of the new immigration can be appreciated when it is realized that nearly 80 per cent. of all the immigrants who

have come to this country from Italy, Austria-Hungary, and the Russian Empire have arrived since 1896 and nearly 70 per cent. since 1900. This is shown in the following table and graphically in Fig. 37.

PROPORTION OF IMMIGRANTS ARRIVING SINCE 1896 AND SINCE 1900

Countries.	Total arrivals 1820 to 1911.	Arrivals since 1896. Number.	Per cent.	Arrivals since 1900. Number.	Per cent.
Italy	3,269,243	2,592,417	79	2,228,759	68
Austria-Hungary	3,330,515	2,618,589	79	2,303,323	70
Russian Empire	2,549,921	2,014,885	79	1,756,027	69

It is less than a generation since the new immigration reached large dimensions; very few of those who arrived during their childhood have yet reached the age of marriage and most of the native-born children of these immigrants are still in school.

Dissimilarity of the New Racial Elements.—One of the best examples of successful racial crossing is that which produced the English race. The departure of the Romans is thought to have left the inhabitants of the British Isles practically unchanged in their racial composition. The first new race to come in great numbers swept down from the north and sought extermination of the natives, not amalgamation with them, but there can be no doubt that the latter was the result. The invasion of the Danes four hundred years later brought only another branch of the great Germanic race and the Normans who conquered England two hundred years after the Danes were, as Carlyle says, "only Saxons who spoke French." These conquests of England by different branches of the Germanic race took many centuries, and each was followed by a period of isolation in which the characteristics of the new people could become fixed. Conditions for successful amalgamation were favorable and the result was a people, powerful in peace and in war, who have carried civilization to all parts of the world. Similar conditions, dependent to a large degree upon their comparative isolation upon islands and peninsulas, produced the races of ancient Greece and Rome and of Japan.

It would be difficult to imagine more dissimilar conditions than those which exist in the new immigration to this country. The immigrant racial stocks are not only different from the native racial stocks but they are not themselves alike. Successful crossing of any one of the races of the new immigration with the native racial stocks must be accomplished under some very unfavorable conditions, but even if it succeeds there still will remain the problem of amalgamating the greatly differing immigrant races. Some of them have lived side by side for centuries in Europe without amalgamation. If the outcome is to be different in America it must result from conditions far more deep-seated than differences between our Government and the governments of the countries from which these immigrants have come.

Rapid Introduction of the New Racial Elements.—The migrations of the past took centuries for their completion, The new immigration to the United States has resulted in the introduction of more than 10,000,000 *representatives of new races in less than twenty years.* This

number exceeds the population of all the New England States and it nearly equals the entire population of the United States in 1830. It has been shown that the amalgamation of even such a similar racial element as that contributed by Germany was more rapid where the number of the new-comers was least. The new races have come in enormous numbers, even if the whole country be considered as their destination; but when we find that 60 per cent. of the new immigration has come to four States—New York, Pennsylvania, Illinois, and Massachusetts—we realize that such increment to population is overwhelming and likely to be far too rapid for successful amalgamation, even if all other conditions are most favorable. This uneven distribution by States of the races of the new immigration is rendered still more striking by their tendency to congregate in cities, and it had been shown such congregation in cities occurs in very circumscribed portions of the cities. In New York State 80 per cent. of the natives of Austria-Hungary, Italy, and the Russian Empire dwell in New York City, and a bulletin recently issued by the Census Bureau shows that natives of these countries constitute more than one-fifth of the entire population and nearly 60 per cent. of the entire foreign-born population of New York City. It is a fact that one person in five in the entire population of New York City came to this country from Europe since 1900.

Conditions Affecting Intermarriage.—There are many barriers to marriage between the new immigrant races and the native racial stocks. The principal one is difference in social condition. The bar of language retards intermarriage, but difference in social condition is a more difficult matter to overcome, even in a country where social distinctions are as plastic as they are in the United States. In nearly all the immigrant races of the present time *only a part of the race is represented.* If the Polish race, for instance, were represented *fully*—by nobles, peasants, scholars, soldiers, teachers, skilled workmen, and unskilled laborers, in the proportions existing in Europe—conditions would be favorable for intermarriage, but of every 1000 Polish immigrants all but 103 are laborers and servants.

The following table shows the enormous proportion of laborers and servants among Polish (the chief Slavic race) and Italian immigrants, compared with the general population in the United States. Only those over ten years of age have been considered in each group, and the only women included are those who are engaged in gainful occupations.

NUMBER PER 1000 ENGAGED IN CERTAIN OCCUPATIONS

Immigrants who arrived in 1911 compared with the general population of the United States (Twelfth Census).

Occupation.	Polish immigrants.	Italian (South) immigrants.	Population of the United States.
Professional	3.1	8.5	43.2
Farm laborers and laborers not specified	606.1	742.7	242.2
Servants	290.4	87.4	53.7
All others (mostly skilled labor)	100.4	161.4	660.9
Total	1000.0	1000.0	1000.0

It is seen that marriage between those in the same social condition in this country must mean, in many cases, simply marriage between immigrants. This is not amalgamation, for it can be shown that such marriages are usually between members of the same race. If it continues we shall have the immigrant races in this country constituting separate racial groups in the second generation as they do in the first.

It seems curious that no systematic attempt should be made to secure data regarding intermarriage among the immigrant races, but it is a fact that marriage license laws in nearly all our States ignore the question of race in the information obtained from candidates for matrimony, contenting themselves with statements as to nativity. Race may be conjectured from the names, and some very broad generalizations can be made from the information which is obtained. It is not safe to place too much reliance upon such unsatisfactory evidence, but a study of such records seems to show that marriage between the native stocks and the immigrant races and between the different immigrant races is not at all frequent. Apparently Poles show no more disposition to marry Russians in this country than they did in Europe, and the same may be said of several other races. The most interesting fact is the *apparent reluctance of native-born children of native-born parents to marry any of the new immigrant races.* Intermarriage between native-born children of Irish or German parents and children of the newer immigrant races is more frequent, but, as has been said, the data available are inadequate and the period of residence of the races of the new immigration in this country has been too short to permit any definite statements. There is, however, plenty of evidence of the frequency with which intermarriage occurs between native-born children of foreign parentage and others of the same race.

It may be said that when mixed marriages take place the foreign-born member of the partnership is usually the man. This coincides with the fact that marriages between the white races and the negroes are nearly always the union of white women and negro men.

In "Heredity in Relation to Eugenics," C. R. Davenport presents a clipping from a Brooklyn (N. Y.) newspaper showing marriage licenses issued, and he points out the frequency of marriages between persons of the same address. A following list of marriages from a recent issue of a weekly newspaper in New York City shows the same condition. It is seen from the names that this happens most frequently in immigrants. It illustrates the influence upon intermarriage of similarity in race, language, and social condition, and the congregation of the immigrant population within such narrow limits.

MARRIAGES BETWEEN THOSE LIVING IN THE SAME HOUSE

From "The Chief" (New York), November 16, 1912

SATURDAY, NOVEMBER 11, 1912

Fredk. Simons, 35, of Great Neck, N. Y., and Bertie Scott, 32, of 308 W. One hundred and thirty-seventh street.

John Teehan, 34, of 229 E. Thirty-second street, and Katie Lynann, 35, of 241 E. Thirty-second street.

Michael Delehanty, 29, of 821 Willoughby avenue, Brooklyn, and Delia Molloy, 29, of 918 Ninth avenue.

Giacomo Ferrari, 20, of 148 Bleecker street, and Delia Solari, 19, of 13 Morton street.

Edw. Killfoil, 28, of 321 E. Eighty-fifth street, and Mary Mills, 27, of 349 E. Fifty-eighth street.

Andrew Fischer, 36, of 554 E. One hundred and forty-ninth street, and Edna Schroder, 20, of 1395 Bristow street.

Martin Kunkel, 31, of 158 Sumpter street, Brooklyn, and Mary Gallaher, 34, of 134 E. Thirty-ninth street.

*F. Allen Magowan, 33, of 720 W. One hundred and eighty-first street, and Adele Burchell, 32, of same.

Perry Radin, 26, of 552 W. One hundred and forty-sixth street, and Kate Rappoport, 22, of 69 E. One hundred and fifth street.

Gustav Bosler, 25, of 179 E. One hundred and fifth street, and Frida Wagner, 23, of 436 E. Eighty-ninth street.

Herbert Albin, 25, of Patchogue, L. I., and Margaret Driscoll, 23, of 210 E. Thirty-eighth street.

Frank Morrison, 33, of 336 W. Forty-fifth street, and Bridget Cullen, 24, of 102 W. Fifty-fourth street.

*Frank Swyank, 26, of 4 W. One hundred and twenty-ninth street, and Mary Gallagher, 25, of same.

Henry Hasketh, 22, of 37 E. Twenty-seventh street, and Margaret O'Connor, 18, of 239 E. Forty-second street.

Elias Rayman, 26, of 550 Fourteenth avenus, Mt. Vernon, and Jennie Gunker, 23, of Paterson, N. J.

Isidor Miller, 30, of 122 W. One hundred and fourteenth street, and Carrie Berger, 25, of 91 Lenox avenue.

*Walter McCabe, 27, of 1969 Amsterdam avenue, and Alice Fitzgerald, 24, of same.

John Rawley, 26, of 359 W. Sixteenth street, and May Walton, 19, of 64 Gansevoort street.

Henry Laegen, 30, of 2136 La Fontaine avenue, and Lillian Lewis, 25, of 358 E. Sixty-second street.

Carl Hirshman, 26, of 460 E. Sixty-fifth street, and Bena Hirshman, 26, of 321 E. Seventy-eighth street.

*Samuel Michsler, 24, of 333 E. Fifty-second street, and Bertha Cohn, 23, of same.

*Edw. Preisinger, 28, of 598 W. One hundred and seventy-second street, and Clara Walsh, 30, of same.

Jos. Berley, 21, of 414 E. Seventy-seventh street, and Mary Matonsek, 19, of 1382 Avenue A.

Guiseppe Pisani, 22, of 601 E. Fifteenth street, and Marie Paterno, 18, of 530 E. Fourteenth street.

Geo. Buchholtz, 26, of 459 W. Forty-ninth street, and Florence Kortz, 25, of 135 W. Sixtieth street.

Harry Miller, 24, of 367 E. Tenth street, and Anna Hazlett, 20, of 202 E. Thirteenth street.

Jos. Moore, 33, of 129 Carlton avenue, and Margaret Santos, 20, of 21 Madison street.

*Harry Ricketts, 26, of 501 W. One hundred and sixty-fourth street, and Amelia Mallach, 17, of same.

*Irving Sloman, 25, of 238 W. One hundred and sixth street, and Rita Lederer, 21, of same.

Jos. Moynihan, 23, of 842 Third avenue, and Elizabeth Murphy, 20, of Boston, Mass.

Chas. Smith, 23, of 2969 Valentine avenue, and Elsie Althaus, 22, of 2770 Briggs avenue.

*Francis Connor, 21, of 452 W. Fifty-seventh street, and Hannah Brett, 28, of same.

Geo. Shipman, Jr., 29, of 2110 Fifty-second street, Brooklyn, and Beatrice Morrison, 24, of 244 W. One hundred and first street.

James Dee, 25, of 52 Catherine street, and Agnes Tully, 22, of 47 Catherine street.

Giovanni Galella, 30, of 2112 Prospect avenue, and Isabella Miraco, 26, of 1487 Hoe avenue.

Michael Vilece, 24, of 4 York street, and Jennie Diehl, 21, of 216 St. Ann's avenue.

Francesco Barbara, 26, of 218 Chrystie street, and Josephine Curto, 20, of 324 Broome street.

*Guiseppe Ragosto, 25, of 413 E. One hundred and sixth street, and Maria Lonzetta, 18, of same.

*Jos. McLoughlin, 23, of 504 W. One hundred and thirty-first street, and Evelyn Garthwaite, 23, of same.

*Gaetano Mazzei, 22, of 434 E. One hundred and sixteenth street, and Patrizia Dellarmi, 19, of same.

Eugene Ford, 28, of Jersey City, N. J., and Margaret Sheehy, 27, of 625 Columbus avenue.

Owen O'Connell, 37, of 308 W. Twenty-ninth street, and Elizabeth Dunn, 35, of 161 W. One hundred and sixth street.

Samuel Baron, 24, of 2098 Vyse avenue, and Pauline Robinson, 23, of 20 E. One hundredth street.

*Thos. Moran, 31, of 372 E. One hundred and thirty-seventh street, and Catherine Cooke, 24, of same.

Wm. McKee, 26, of Greenpoint, L. I., and Agnes Vero, 20, of 627 Eleventh avenue.

John Gemer, Jr., 24, of 504 E. Sixteenth street, and Marguerite Mutler, 18, of 335 E. Sixty-sixth street.

John Maxwell, 30, of 703 Eighth avenue, and Hannah Ford, 24, of 166 E. Ninetieth street.

Wm. Bogart, 30, of Hoboken, N. J., and Mary Regan, 25, of 26 King street.

Luigi Parsarelli, 23, of 784 E. Two hundred and fourteenth street, and Edwege Carti, 20, of 320 E. One hundred and fifty-sixth street.

*Francis Kirk, 34, of 1659 Nelson avenue, and Geraldine Fitzgerald, 28, of same.

Harry Koflit, 23, of 850 E. One hundred and sixty-fourth street, and Carrie Feist, 22, of 1530 Minford place.

*John McFarlane, 38, of 209 W. Fourteenth street, and Johanna Page, 24, of same.

Thos. Henry, 26, of 131 E. Eighty-sixth street, and Hanna Moran, 26, of 1857 Second avenue.

*Adam Bradle, 38, of 404 W. Fifty-eighth street, and Emma Warberton, 20, of same.

Jos. Jahoda, 22, of 340 E. Seventy-first street, and Mary Francel, 21, of 415 E. Seventy-fifth street.

Wm. Nolen, 27, of 378 E. One hundred and forty-seventh street, and Josephine Bauman, 19, of 1364 Purdy street.

Geo. Westendorf, 30, of 2540 Park avenue, and Marie Mailbaum, 21, of 3505 Broadway.

Irving Maurer, 23, of 88 Garick street, and Hilda Brandt, 18, of 418 E. Third street.

*Chas. Looker, 25, of 94 W. One hundred and fourth street, and Jessie Allwine, 25, of same.

TUESDAY, NOVEMBER 12, 1912

Lewis Shea, 32, of 84 Barrow street, and Florence Wilson, 21, of 81 Barrow street.

Harry Theis, 22, of 150 W. One hundred and eleventh street, and Mary Coniker, 23, of 861 W. End avenue.

Wm. Healion, 25, of 774 Ninth avenue, and Margaret Molloy, 23, of 40 W. Forty-ninth street.

*Peter Costello, 28, of 170 W. Sixty-fifth street, and Anna Holahan, 21, of same.

Wm. Stearselle, 29, of 215 W. Thirty-fourth street, and Edna Bunner, 28, of 716 W. One hundred and eightieth street.

Lester Purfurst, 24, of 1133 Park avenue, and Adele Bahrenburg, 22, of same.

Philip Gallub, 26, of 302 E. Fifth street, and Frances Cohen, 22, of 41 E. Seventh street.

Jos. Madden, 26, of 547 E. One hundred and thirty-fourth street, and Sarah Matthews, 24, of 988 Union avenue.

Peter Selinske, 27, of 9 Leroy street, and Helen Caddle, 21, of 796 Ninth avenue.

*Harry Alger, 32, of 30 W. Sixty-fifth street, and Helen Morris, 31, of same.

Chas. Hake, 24, of 1651 Barnes avenue, and Anna McKenna, 20, of 434 Concord avenue.

Pasquale Carrolla, 23, of 325 E. One hundred and seventeenth street, and Margaret McKenna, 20, of 281 E. One hundred and thirty-sixth street.

Louis Newkirk, 41, of 32 E. Eighty-first street, and Edna Hillman, 31, of 111 E. Fifty-sixth street.

Emil Grossmann, 37, of 26 W. One hundred and sixteenth street, and Sarah Gottlieb, 23, of 24 W. One hundred and twenty-fourth street.

*Salvatore Daguela, 35, of 205 E. One hundred and sixth street, and Marcanna Maracotta, 28, of same.

Milton Pollak, 25, of 1300 Findlay avenue, and Ida Kirsch, 20, of 1556 Minford place.

*Peter Medford, 30, of 231 W. Sixteenth street, and Josephine Butler, 31, of same.

Chas. Weber, 26, of 319 First avenue, and Mary McNevin, 21, of 231 E. Twenty-fifth street.

*John Nortett, 29, of 256 W. Forty-third street, and Dorothy Montgomery, 24, of same.

Philip Bott, 26, of 339 E. Eighty-eighth street, and Lizzie Kieser, 21, of 1681 Avenue A.

Wm. Becker, 21, of 286 E. One hundred and fifty-sixth street, and Alice Mitchell, 22, of 622 Courtland avenue.

Chas. Mundorff, 26, of 2698 Briggs avenue, and Isabel Latten, 24, of 522 W. One hundred and fifty-eighth street.

Irving Engel, 24, of 188 Boerum place, Brooklyn, and Anna Mann, 21, of 156½ Seventh avenue.

*John Hickey, 27, of 756 E. One hundred and thirty-seventh street, and Mary Coffey, 19, of same.

Stephen Christie, 27, of 421 W. Forty-fourth street, and Mazie Hartnett, 26, of 311 E. Forty-third street.

Gustave Myer, 21, of 713 Second avenue, and Anna Brennan, 23, of 446 Eleventh avenue.

*Patk. Long, 27, of 208 E. Eighty-fifth street, and Eliza Taylor, 26, of same.

Leonard Smith, 28, of 1025 Lexington avenue, and Matilda Sloan, 23, of 1016 Stebbins avenue.

Another factor which has an unfavorable effect upon intermarriage is the inferior education of the races of the new immigration. Illiteracy operates in much the same way as inferior social condition, in that it limits the opportunities for association to a single social group. Assimilation is necessary for the acquaintance which precedes marriage, and illiteracy is a decided bar to assimilation; it is a powerful factor in causing immigrants to congregate in alien colonies in the cities, it limits the occupations in which they may engage, and thus prevents rise in social condition, and it tends to keep earnings at a low point. All these are conditions which tend to postpone or to prevent marriage.

The migratory character of much of the new immigration tends to reduce the chances of intermarriage with members of the native races, but it is believed that that part of immigration which is constituted by labor migrations is so distinct from immigration for permanent change of residence that it should not be taken into account in considering conditions which affect amalgamation.

The conditions which influence intermarriage may be summarized in the statement that many of them are very unfavorable to

marriage between the native racial stocks and the races of the new immigration, but that many of these conditions tend very distinctly to promote marriage between members of the same immigrant races. Such conditions are unfavorable to amalgamation, but there are no data available to show whether they are offset by others more fortunate. There is urgent need for adequate study of this question, and for the inauguration of new methods in recording marriages and births in order that account may be taken of race as well as nativity.[1]

Hebrews and Intermarriage.—Many of the conditions outlined which affect marriage between the native stocks and the immigrant races and between the different immigrant races do not apply to Hebrews. The proportion of women among Hebrew immigrants is much higher than in any other race of the new immigration. The presence of so many women among Hebrew immigrants and the greater diversity in occupation and social condition make the question of intermarriage a special one as far as Hebrews are concerned. But there is a much stronger reason for considering Hebrews separately when discussing amalgamation—the ideal of racial purity which constitutes the most formidable barrier to intermarriage with other races. It is a fact, well substantiated by many unbiased writers, that Hebrews have refused to mix their blood with those among whom they live in every country in which they have settled in large numbers.[2] When Hebrews have settled in small numbers they have intermarried freely, to the great advantage of the races fortunate enough to receive this new blood. An excellent illustration of the influence of the numbers of Hebrews upon intermarriage is the difference seen in the South and in New York City. In the South the amalgamation has been

[1] The census of 1900 affords some interesting information regarding mixed marriages among those in whom race can be learned from nationality. Mixed marriages were shown to be more common between certain immigrant races than between immigrant races and the American-born of native parentage. There were 23,076 children with American mothers and Italian fathers, and only 2747 children with Italian mothers and American fathers. There were 56,000 persons with Irish-German parentage, 47,600 with German-English parentage, and 12,300 with Irish-Canadian (French) parentage.

In a very large percentage of these mixed marriages the mothers have been Irish, chiefly, as might be expected, in marriages with immigrants from Catholic countries, but also in marriages with Hebrews, Germans, or Swedes. William Z. Ripley calls attention to the importance of the Irish woman as a factor in ethnic amalgamation in this country. This is due in part to the fact that Irish women are so numerous; in no other immigration have there been more women than men, but Professor Ripley attributes it also to the Irish women's superior adaptability, comradeship, democratic ways, and lack of spirit of caste.

It must be remembered that nearly 70 per cent. of all the Italians, Slavs, and Hebrews who have come to the United States have arrived since the census of 1900. The census of 1910 will afford very valuable information, but on account of the recent origin of the new immigration it will be possible to show only trends and beginnings even when the results of this census are made public.

[2] At a conference held in 1909 in New York City, the General Conference of American Rabbis passed the following resolution: "Resolved, That the General Conference of American Rabbis declares that mixed marriages are contrary to the traditions of the Jewish Religion and therefore should be discountenanced by the American Rabbinate."—Dr. Maurice Fishberg, "The Jews, A Study in Race and Environment," p. 205.

complete, with the best of results to all concerned, while in New York intermarriage has thus far been the exception.

Hebrew immigration to this country has been so large and has taken place in so short a period that, quite aside from the cause mentioned, conditions for amalgamation seem rather unfavorable. Hebrew immigrants of recent years have congregated in a few communities, and this retards the general assimilation which is an essential for intermarriage. In a very interesting paper entitled "The Crossing of the Races," Dr. J. G. Wilson, of Ellis Island, says:

"There does not seem to be a general movement of sufficient momentum to encourage the belief that the Jew, forgetting his race and remembering only the essential principles of his religion, will finally arrive at the goal of complete racial amalgamation. True, there is a marked tendency among the adherents of reformed Judaism in the United States to bury the antiquated customs of the past, and to become real Americans, but this reformed Judaism hardly has time to make itself felt before it is dealt a killing blow by the mere force of numbers in the opposite ranks. In other words, the old ideas from the ghettos of Europe are imported so rapidly that the new have but a poor chance to gain sufficient adherents to keep pace with, and finally to outstrip, the old superstitions."

An Alternative to Amalgamation.—It has been seen that even the insufficient data obtainable disclose the existence of some formidable barriers to amalgamation of the races of the new immigration: Whether this portends good or ill for the future of this country it is beyond the scope of this chapter to discuss, but it seems worth while, before leaving the subject, to mention an alternative to amalgamation. If barriers such as those mentioned prove insurmountable and immigration from the same sources continues in great volume for the next twenty years, the *substitution* of Slavs, Italians, and Hebrews for the native racial stocks must inevitably result. General Francis A. Walker, superintendent of the tenth and the eleventh censuses, has shown very clearly that the *birth-rate among the native stocks of the United States bears a direct relation to the volume of immigration.* The falling birth rate among the native white population has been too fully discussed in recent years to make it necessary to give many statistics verifying it. Walter F. Wilcox, in an investigation made for the Census Bureau in 1905, found that in 1900 the number of native white children per 1000 native mothers, fifteen to forty-four years of age, was 296 in cities of more than 25,000 population and 522 in smaller cities and rural communities. For foreign mothers it was 612 per 1000 in large cities and 841 in small cities and rural communities. The races of the old immigration contributed largely to this result, but recent studies in New York City show an even greater fertility among the new immigrant races. In New York State the increment to population from immigration has for several years exceeded that from births, and when it is remembered that the birth rate for foreign mothers is twice that for native mothers, it can be seen that the replacement of the native

stocks is going on in New York at a tremendous rate. It is not possible to analyze here the causes of the falling native birth rate, but there is ample evidence that it is due not to diminished fertility, but rather to voluntary restriction of births. Postponement of marriage for an average period of two years would reduce the birth rate in any community more than 10 per cent., and one of the first results of economic stress is postponement of marriage among those who appreciate most fully the responsibility of parenthood. It was the belief of General Walker and several others, especially qualified to form an opinion on this matter, that immigration is very largely responsible for the restriction of the native birth rate. He believed that Americans shrink from the industrial competition thrust upon them by immigration. They are unable, on account of better standards of living, to compete with immigrants in the more poorly paid forms of labor, and they are unwilling to have their children do so. Prescott Hall quotes M. Arsène Du Mont as saying that in a community where there are different social standards prudential restraint (in entering into marriage and, to a less extent, restriction in the births) is exercised by the groups having the higher ocial standards to maintain.

Although it is not our province to discuss whether the replacement of the native stocks of this country with the races of the new immigration is desirable or not, from the medical point of view it is of interest to know that such substitution is one of the possibilities, for if it occurs it will mean that the future prevalence of insanity, mental defect, and organic nervous diseases in this country *will be that existing among the foreign-born population.* It is a fact recently brought out by Horatio M. Pollock, in the studies referred to before, that the "*rate of insanities among the foreign-born in New York City is* 2.48 *times that of the native-born;*" and it may be added that nearly 60 per cent. of the foreign-born population of New York City in 1910 were representatives of the new immigration.

Assimilation of the Races of the New Immigration.—As it has been shown, there were no conditions particularly unfavorable for assimilation in the earlier immigration. The different social grades were fairly represented, the education of the newcomers was generally equal to that of the native population, and immigrants were widely distributed by the operation of purely natural processes. Immigrants from Germany, Ireland, England, and the Scandinavian countries found our national customs and standards very similar to those which they had left behind them.

The most formidable barriers to the assimilation of the new immigration have been mentioned. The preponderance of servants and unskilled laborers in the new immigration; the much lower degree of education; the tendency of immigrants to settle among the immigrant population, thus limiting their opportunities for contact with American social and family life; the general intention of returning to Europe at some time, resulting in the period of residence being considered as a more or less temporary experience; the strong ties remaining

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between the immigrant and the old country through the fact that wives, sweethearts, and relatives still remain there; the intense devotion to the single purpose of accumulating money in the shortest possible time, which narrows life—habits and intellectual interests—all these are factors which tend to keep a large part of our immigrant population from acquiring American ideals and becoming an integral part of American life. It is quite true that a considerable part of the foreign population is not affected by such conditions, but it is the opinion of many of those who have had the best opportunities for observation that by far the greater number of recent immigrants are, and it is undeniable that such unfavorable conditions are the result of those changes in the character, sources, and causes of the immigration which have taken place in recent years.

Such social effects of immigration as these belong largely to the fields of sociology, politics, and economics, but there is not one of the conditions mentioned unfavorable to assimilation which is not a factor in the production of insanity. In recent years psychiatrists have come to realize that much mental disease depends upon imperfect adjustments of the individual to his environment. As Adolf Meyer has pointed out, it is apparent that the environment often needs treatment more than the patient does. We have a large part of the population (constantly being recruited) which is exposed to the fiercest economic stress. To this must be added usually separation from loved ones, comparative isolation from all elements of the communities except others enduring the same stress, the evils of overcrowding, and the subordination of all other interests to the single one of acquiring enough means to return in comfort to Europe or to establish a home and bring families to this country. It is small cause for wonder if it is found that excessive ratios of insanity prevail among the new immigrant races under such conditions.

Mental Disease and Defect in the Races of the New Immigration.—**Psychoses.**—We have seen that the prevalence of psychoses was very high in the races of the old immigration. As the proportion of persons of advanced age rises in the natives of Germany and Ireland, on account of the fact that there are no longer considerable numbers of young adults arriving from those countries, the ratio of the German and Irish insane to the number of Germans and Irish in the United States will continue to rise, while the absolute number of mentally disordered persons of those nationalities will steadily decrease.

In order to determine the prevalence of psychoses in the races of the new immigration we must make use of the very latest statistics available, for the new immigration is in full operation and it is changing proportions among the foreign-born population yearly, or one might even say monthly, so great is its volume. Unfortunately the nativity of the psychotic population of the United States, determined by the census of 1910, has not yet been announced. A preliminary bulletin giving the nativity of the foreign-born population of New York State was issued by the Census Bureau May 13, 1912, and a very careful

census of the insane in public institutions in New York was taken by the State Hospital Commission on February 10, 1912. This enables us to examine the relations of race to the prevalence of psychoses in that State, and, as a great part of the new immigration is destined to New York, some fairly definite conclusions may be reached.[1]

The following table shows the nativity of the foreign-born population of New York, the nativity of the foreign-born patients under treatment in the New York State Hospitals, and the number per 100,000 population of patients of each of the principal nationalities of the old and of the new immigration.

NATIVITY OF PATIENTS UNDER TREATMENT IN NEW YORK STATE HOSPITALS AND RATIO OF SUCH PATIENTS TO THE POPULATION

Countries.	Insane February 10, 1912 (special census).	Population 1910 (United States Census).	Insane per 100,000 population.
The old immigration:			
Germany	3,262	437,866	745
Ireland	4,381	367,735	1191
England and Wales	761	153,847	494
Scotland	164	39,408	416
Scandinavia	452	91,199	496
The new immigration:			
Austria-Hungary	1,093	341,395	320
Russia and Poland	1,584	566,069	279
Italy	781	471,910	140
All other countries	1,231	259,853	469
Total foreign-born white population	13,709	2,729,282	502
Native-born, foreign colored, and unascertained	19,953	6,384,332	314
Total	33,662	9,113,614	369

It is seen that the old immigration furnishes the higher ratios, and that Austria-Hungary is the only country of those supplying the new immigration which has a higher ratio than the native-born population. This is due to the fact that the new immigration has been of such recent origin. An analogous condition may be found in rapidly growing sections of those countries in which the new population is largely of native birth. In New York State the three counties having the lowest ratios of mental disease to the population are the three in which there is the most rapid increase in population. Two are near New York City, where the new population consists mostly of young married people, and one is a small county containing a large industrial city which has increased in population 59.2 per cent since 1900. The young natives who come to such counties do not bring their aged relatives with them, and the composition of the population as to age periods is very similar to that in our large cities, which are composed so largely of recently landed immigrants. In such communities the death rate too is always exceptionally low.

[1] It should be recalled that these individuals sent to institutions do not truly represent the entire number of psychoses.

The low ratio of the mentally diseased to the population among the new immigrant races has been taken to mean that these races are singularly free from such diseases. Those who reach this conclusion fail to take into account the factors just mentioned and the fact that a large proportion of the aliens admitted to our public institutions are returned to their native countries. During 1912 the number of psychotic aliens deported from the New York State Hospitals under the provisions of the federal immigration law was 419; by the State Board of Alienists, with the consent of friends or of the patients, 474; and by friends and relatives without State aid, 278, making a total of 1171 insane aliens returned to Europe in a single year by agencies similar to those which are at work in nearly all the States. There were 2737 foreign-born patients among the first admissions to the New York State Hospitals during 1911, and in that year more than 28 *per cent. of all foreign-born patients admitted were returned to their homes abroad.* This greatly reduces the number of foreign-born patients remaining in public institutions and the reduction occurs very largely among representatives of the new immigration, for nearly three-fourths of the patients admitted within five years of the time of their arrival in this country are Italians, Slavs or Hebrews.

A study of *first admissions* to institutions for the insane discloses the real prevalence of psychoses among the new immigrant races. The following table shows the nativity of first admissions to New York State Hospitals during the year ended September 30, 1911, compared with the population of the State in 1910.

NATIVITY OF FIRST ADMISSION TO NEW YORK STATE HOSPITALS, 1911, AND RATIO OF SUCH ADMISSIONS TO POPULATION

Countries.	First admissions during year.	Population 1910 (United States Census).	Admissions per 100,000 population.
The old immigration:			
Germany	488	433,866	111.4
Ireland	586	367,735	159.4
England and Wales	135	153,847	87.7
Scotland	38	39,408	96.4
Scandinavia	84	91,199	92.1
The new immigration:			
Austria-Hungary	348	341,395	101.9
Russia and Poland	456	566,069	79.5
Italy	261	471,910	55.3
All other countries	341	259,853	138.6
Total foreign-born white population	2737	2,729,282	100.3
Native-born, foreign, colored, and unascertained	2963	6,384,332	46.4
Total	5700	9,113,614	62.5

It is seen that each of the races of the new immigration furnishes a much higher ratio of admissions than the native population and that, in spite of the comparatively recent origin of immigration from Austria-Hungary, that nation is third in the number of admissions per 100,000

population. Russia is third in the absolute number of admissions and far ahead of the United States in the number of admissions per 100,000 population.

In 1906, the writer made a study of the admissions to the New York State Hospitals during the year ended September 30, 1905, using special reports from each superintendent which were obtained through the courtesy and the interest of W. L. Russell, who was then medical inspector. This study, which included consideration of the types of mental disease, was published in the *American Journal of Insanity* in July, 1907. The only enumeration of the foreign-born population which was then available was the census of 1900, but by comparing admissions from New York City with those from the districts just being reached by the new immigration it was possible to determine that the ratio of admissions to population rose with the period of residence of representatives of the new immigration. This fact made it possible to predict that "when the young Hebrews and Slavs of the immigration of today have been here long enough to develop the psychoses of later years with the frequency with which it has been shown that they develop those of adolescence, it is likely that, even disregarding its volume, the 'new immigration' will prove more adverse in its effect than the 'old immigration' has been."

The foregoing table shows that this prediction is being fulfilled very rapidly, and it is safe to predict now that if immigration continues from the same sources in the same volume for another seven years all the races of the old immigration except the Irish will be outstripped by Hebrews and Slavs and possibly by Italians in the prevalence of psychoses. When the enormous volume of the new immigration is taken into consideration and the vastness of the sources of population in Russia and southeastern Europe realized, one can foresee the dimensions which the problem of the care of the mentally diseased may reach twenty years hence.

If the admission rate for the entire population of the State had been the same in 1911 as it was for the natives of Austria-Hungary, there would have been 9286 first admissions to the New York State Hospitals during the year. If the admission rate had been the same for the entire population of the State as it was for the native-born population there would have been only 4229 first admissions. The gravest aspect of this question is that with such an abnormal prevalence of psychoses in a group certain to constitute in less than ten years the larger part of the population in several of the States the prevalence of psychoses in the second generation is sure to rise through the influence of heredity. Another serious aspect of this rising prevalence of the psychoses due to immigration is that it will be increasingly difficult to maintain present standards of care in view of the enormous sums which will be required for maintenance.

Types of Mental Diseases in the New Immigration.—Through the studies of Kirby and Pollock, which were mentioned when the types of mental disease in the old immigration were considered, it is possible

to learn something of the types most common in the races of the new immigration. The number of cases in some clinical groups was so small in Kirby's series that the results did not quite agree with Pollock's, which dealt with a much greater number of admissions. The results of these studies, taken in conjunction with the statistical tables of the State Hospital Commission published since 1908 and those obtained by the writer at Ellis Island, make these general conclusions possible.

1. The psychoses more prevalent among Hebrews than in the native stock are manic-depressive psychosis, dementia præcox, the psychoneuroses, and psychoses associated with constitutional inferiority.

2. The absence of alcoholic psychoses among Hebrews is the most striking clinical fact in connection with immigration. In 1909 there were but 3 patients with alcoholic psychoses in 448 Hebrews admitted to all the New York State Hospitals.

3. The very high prevalence of general paresis among Italians bears a direct relation to the high prevalence of venereal diseases among Italians in New York. It is very desirable that statistics should be collected from other States, as more than 70 per cent. of all Italians in New York State are in New York City—an environment which has been shown to be very undesirable.

4. Italians show a freedom from alcoholic psychoses second only to Hebrews.

5. Italians exceed the native-born in the prevalence of epileptic psychoses, infective-exhaustive psychoses and dementia præcox.

6. As the country of their birth gives no clue to race in the case of Poles and some of the other Slavic peoples it is impossible from the data available to reach as definite conclusions regarding the prevalence of specific psychoses among Slavs as among Hebrews and Italians.

7. From the data available, alcoholic psychoses are found to be more prevalent among Slavs than among any other races of the new immigration, but not as prevalent as among the native-born.

8. General paresis is apparently nearly twice as prevalent among Slavs as in the native-born, but not so prevalent as among the Italians. Dementia præcox is more prevalent among Slavs than among the native-born.

The unsatisfactory nature of some of these conclusions indicates the necessity for more adequate study of the psychoses prevalent in the races of the new immigration. It is seen that, in general, the mental diseases most frequent among the new elements of the foreign-born population are those with an unfavorable prognosis. The large proportion of representatives of these races among first admissions makes this of importance in interpreting recovery rates, and it can be predicted that a gradually declining recovery rate will be noted in States receiving a large proportion of the new immigration. This has been the case in New York.

Mental Defectiveness.—It is impossible to estimate the relative prevalence of mental defects among the races of the old immigration and

the new or even to make such comparisons between the native-born and foreign-born population, for no State in the Union undertakes to provide institution care for all its mental defectives. The classes provided for are those particularly likely to be intercepted and excluded by the medical officers of the U. S. Public Health Service at ports of entry. The number of mental defectives in the United States was estimated to be about 150,000 when the census of the defective classes was taken in 1903. Of that large number only 14,347 were cared for in institutions. It is impossible, therefore, to study the relation of immigration to the prevalence of mental defectiveness in the United States in the same way in which insanity has been considered. The latest census of the "feeble-minded" (in which term idiots and imbeciles were included) for which data are available was that of December 31, 1903. Reports of the enumeration of the defective classes made in 1910 have not yet been made public.

The proportion of the feeble-minded in institutions to the population in 1903 was four times as great for the foreign-born as for the native-born. A very striking feature of the nativity of the feeble-minded in institutions was the small proportion of Irish. No other country contributing largely to the foreign-born population of the United States had so low a ratio. This fact is of great interest in connection with the enormous prevalence of the alcoholic psychoses among the Irish, which has already been commented upon, for the relation of alcoholism in parents to mental defect in their children is a matter of much interest at the present time.

The highest ratio was in natives of Russia. This is due to the remarkable number of mental defectives among Hebrews, who have always constituted a large proportion of immigrants from Russia. At Ellis Island, nearly a third of all immigrants certified by the medical officers of the Public Health Service for mental defects are Hebrews, although that race constitutes only 14 per cent. of the total number of arrivals. Italy is second in the proportion of mentally defective immigrants excluded at Ellis Island, and other races of the new immigration, almost without exception, furnish much larger proportions than are furnished by immigrants coming at the present time from Ireland, Germany, and Scandinavia. This would seem to indicate that mental defectiveness is likely to increase in this country as the result of the changes in the character and sources of immigration.

It is apparent that, even with the best of facilities, many mentally defective immigrants must escape detection in the examination at ports of entry. It is necessary, therefore, to seek confirmation of such statistics as those available at Ellis Island in the communities to which immigrants are destined. Although the prevalence of mental defectiveness in any group of the population cannot be estimated by the number under institution care, the incapacity of mental defectives for education brings them into notice in the public schools. Such school children are collected in ungraded classes, and in New York City in 1911 there were about 125 such classes, with an enrolment of about 2000 mentally

defective children. It is generally understood that the members of such classes represent the lower grades of mental defect and that many feeble-minded children remain in the regular classes, through the patience and forbearance of their teachers and principals, or through their inability to recognize mental deficiency in their charges. *Nearly all the mentally defective children in the ungraded classes in New York City are the children of immigrants.* In a report prepared for the Public Education Association of New York by Miss Anna Moore, in 1911, and published by the State Charities' Aid Association, the histories of 317 mentally defective children, selected at random from 32 ungraded classes, were tabulated. Miss Moore states that all but 40 of these children were of foreign parentage. The principal races and nationalities were represented as follows: Hebrews (Russia and Austria-Hungary), 130; Italians, 40; Germans, 35; Irish, 20; Negroes, 9. The high proportion of Hebrews and Italians and the low proportion of Irish show a close relation between the incidence of mental defectiveness in the population and in immigrants examined at Ellis Island.

IMMIGRATION AND THE PREVENTION OF MENTAL DISEASE

We have considered at some length those phases of immigration which appear to have the most influence upon the prevalence of mental disease and defectiveness. We have traced the growth of immigration and have examined recent changes in its causes and sources. We have seen that many immigrants come at the present time to environments which are most unsuitable, and that, from many causes, they are exposed to severe economic stress during their first few years in the country and to other conditions quite capable of resulting in an excessive prevalence of psychoses without the necessity of assuming special predisposition to mental disease on the part of the immigrants. We have found that material is not available for a satisfactory study of racial amalgamation. Although it is very essential for us to know if the different races are being fused in this country, and if so, among which elements this process is taking place and its probable effects upon the prevalence of mental diseases and defects, we have found that we must content ourselves with a study of the *conditions* of racial amalgamation and that we are able only to outline a few trends, likely to influence amalgamation unfavorably.

We have yet to consider the relation which the facts brought together regarding immigration bear to the *prevention* of psychoses, which has recently become a part of the general advance in preventive medicine. More careful study of cases has given us more definite information regarding the causes of mental disease, and analysis of these causes has shown that not a few of them are preventable. The importance of heredity as a factor in the production of mental disease is now receiving much attention after a period of comparative neglect. One result of this wider recognition of the importance of heredity

has been the enactment of laws in several States prohibiting the marriage of those likely to transmit hereditary defects. In six States laws have been enacted for the sterilization of such persons and of certain criminals. There has been an amazing growth of popular interest in eugenics and marked development of laboratory and statistical methods for the scientific study of heredity. Such essential causes of insanity as syphilis and alcohol are being attacked from a new angle.

It would be very unfortunate if, in these notable advances, we should fail to give most serious thought to the regulation of immigration as a method of preventing mental disease. In many States immigration is responsible for a large increment to population, and in some States the number of immigrants received annually outnumbers the number of births. As R. De C. Ward points out, there is no way in which the principles of eugenics can be so easily and effectively applied as in thorough and scientific selection of these parents of future American children.

We have the unquestioned legal and moral right to make this selection solely in the interests of our own land and our own people, and the only matters at issue should be the scope and methods which will render such an examination most effective.

With the exception of the requirements of a broad humanity no other conditions should influence us. This is not a political question and it is not a question of trade or commerce. It is a question of public health, and it should be divorced from those immigration questions which relate particularly to economic conditions or to labor or social problems.

Restriction of Immigration and Selection of Immigrants.—One means of effectually preventing the admission of insane and mentally defective immigrants is by the arbitrary restriction of immigration. This was suggested at a very early period in our history. A great many methods have been proposed, among which are suspension of all immigration for definite periods, the exclusion of specified European races by laws similar to the Chinese Exclusion Act, the limitation of the total annual immigration to definite numbers, raising the head tax to a prohibitive amount, and such requirements as an illiteracy test (which would automatically cut off a large part of immigration).

It seems to the writer that controlling by arbitrary restriction those evils of immigration which we are considering would be very much like controlling the introduction of infectious diseases by absolutely prohibiting commerce with infected ports. That, indeed, was the old idea of quarantine, but, as J. H. White, of the Public Health Service, says, "Modern quarantine is a sieve, not a dam." Advances in our knowledge of the infectious diseases and the means by which they are transmitted have enabled us to detain only the passengers, ships, and freight capable of conveying disease and to permit other passengers, ships, and freight to enter, even though they come from badly infected ports. The law permits the President to suspend immigration or commerce whenever that extreme step is deemed necessary to prevent

the introduction of infectious diseases, but it is a source of justifiable pride to American sanitarians that such a measure has not been enforced for twenty years and probably never will be again. And so, with the exclusion of insane and mentally defective immigrants, it would be a confession of the inadequacy of the resources of modern psychiatry if we were obliged to restrict immigration arbitrarily simply as a means of excluding this class of immigrants.

It is difficult and expensive to maintain at ports of entry a medical examination competent to accomplish this result, but it is the opinion of some of those who have had the most experience in the mental examination of immigrants that it is possible to exclude by far the greater number of psychotic and mentally defective immigrants. It is also feasible, by a wise and liberal enforcement of the laws providing for the deportation of aliens from public institutions, to return many of those who escape detection in the examination at ports of arrival, and who become public charges within a few years. It is possible that study of the conditions of racial amalgamation or substitution, of the relation of immigration to wages, poverty, congestion of population, child labor, prostitution, or other economic and social evils which indirectly affect the prevalence of mental and nervous diseases, may justify arbitrary restriction of immigration for such causes, but there is wide difference of opinion as to how much such conditions have been shown to depend upon immigration. Although bills for the restriction of immigration have been introduced at nearly every session of Congress, all legislation which has been enacted thus far has provided for the exclusion of immigrants *individually*.

The present immigration law prescribes certain physical, mental, and moral defects and certain conditions likely to affect ability to earn a living which exclude their possessors from entry into the United States. If an immigrant does not possess the disqualifications specified he is admitted, without reference to his race, nativity or creed, destination, occupation, or to the volume of immigration of which he is a part. It would seem that the medical regulation of immigration would be accomplished best by development of this principle of individual selection, but of course it must be admitted that any general restrictive measures would effect a *pro rata* reduction in the number of mentally diseased and mentally defective arriving at our ports.

The Immigration Law and Mental Disease.—It is customary to demand new legislation whenever specific abuses are uncovered, and so it may be worth while to consider the existing laws which may be utilized for the exclusion of mentally diseased and mentally defective immigrants before dicussing any changes. The Immigration Act of 1907 provides that the following persons shall be excluded from the United States: "All idiots, imbeciles, insane persons, and persons who have been insane within five years, persons who have had two or more attacks of insanity at any time previously." The law is sufficiently definite, but immigrants cannot be selected by legislation. It would be nearly as futile to attempt to control burglary by legislating against

it and not providing a police force with definite powers, or to attempt to suppress smallpox by sanitary laws, at the same time neglecting vaccination, as it is to attempt to exclude insane and mentally defective immigrants without providing for facilities for the detention and examination of those suspected.

The Immigration Law provides (section 17) that the physical and mental examination of all arriving aliens shall be made by medical officers of the Public Health Service, but it does not define the scope of such examination nor make the provision of proper facilities or the services of interpreters mandatory upon any administrative official. All these matters are left to the discretions of those who administer the Immigration Law and they must be determined by the funds available, the importance attached to these matters by laymen in the Department of Commerce and Labor and the general interest which seems to be taken by the public in this part of the examination on arriving aliens. On the other hand there is the insistent demand of steamship companies for the shortest detention possible. It is very doubtful if the framers of the Immigration Law intended that the medical examination of immigrants should rest upon such a precarious footing, and it is certain that those who are familiar with the great problems of the care of the insane and mentally defective and the prevention of mental disorders in this country desire very earnestly that careful and thorough mental examination of *all* immigrants and the provision of ample facilities should be definitely required by law.

There are several reasons for conducting the examination of immigrants at points nearer their homes than American ports of entry. The exclusion of an immigrant at a seaport in his own country would involve far less hardship than his exclusion after he has crossed the ocean and presented himself at one of our ports. If medical examination at the principal ports of embarkation were possible it would be practicable for an intending immigrant to present himself and his family at an American Consulate and be informed whether he is likely to be accepted before he has sold or mortgaged his property or raised money by other means for his passage to this country.

For reasons of humanity, then, if not for greater efficiency, it is very desirable that a mental examination of intending immigrants should be made by American medical officers at ports of foreign embarkation. The principal obstacle thus far has been the refusal of foreign governments to permit such an examination; but if the immigration law provided that immigrants from specified ports would not be admitted without such an examination, it is safe to predict that these governments would very speedily recede from their position, for immigration means immense profits to steamship companies, and the relation between steamship companies and certain foreign governments is a very close one.

Another means of detecting excludable conditions in immigrants before their arrival in this country would be to detail American medical officers upon vessels bringing immigrants to the United States.

After the revelation of steerage conditions by investigators employed by the Immigration Commission in 1910, a bill providing for just such an inspection service was introduced. Every ship, of whatever nationality, which carries a certain number of Italian immigrants must have on board a Royal Italian Commissioner, who almost invariably is a medical officer of the Italian Navy. These Royal Commissioners exercise remarkable powers, the penalty for disobeying their instructions being revocation of the license granted by the Italian Government to sell steamship tickets in Italy. They supervise the food, accommodations, hospital facilities, medical care, and in short any conditions which affect the comfort or safety of Italian immigrants. This Government has ample authority to place American medical officers upon ships bringing immigrants to this country, and it can be seen that such physicians, in their intimate contact with passengers, would have an exceptional opportunity for picking out those with enough evidences of mental defect or disease to warrant detention and careful examination upon their arrival at Ellis Island.

The effect which such a provision would have upon problems of quarantine and ship sanitation would be far-reaching, and it is believed it would lead to the practical abolishment of detention for observation at United States quarantine stations.

Another means which has been suggested to lessen the number of psychotic and mentally defective immigrants is that certificates of health be required from responsible governmental authorities in Europe, stating that the immigrants in question had never been in an institution for the insane. The principal objection to such a plan is that it would place a very powerful weapon of oppression in the hand of certain foreign governments. There is no doubt as to the great value to this country of such immigrants as Carl Schurz, but the chances that Carl Schurz would have obtained a certificate of that kind from representatives of the German government when he came to America are very remote. It seems, therefore, that the slight advantage of this plan would be offset by the danger that it would be used to the detriment of the intending immigrants.

Another plan, proposed by C. B. Davenport, is that social field-workers should be stationed in various countries in Europe to conduct studies in heredity, and that only such immigrants be admitted as secured certificates that their family history had been examined by such field workers and found satisfactory. It seems that the administrative objections which would be raised to this procedure would be insurmountable. It is also a question whether our present information regarding the relation of heredity to mental diseases of different types is sufficient to warrant such an arbitrary use of it.

The cost of a thorough mental examination of all immigrants would be large, but it would be insignificant compared with the great sums required for the support of the alien insane and mentally defective in this country. Many of the States which bear this heavy burden would very gladly pay much more than an efficient mental examination

would cost to be relieved of the expense of caring for the aliens who now readily enter the country. The responsibility rests with the federal government, however, as every attempt of the States to regulate immigration has been declared unconstitutional. It is not generally known that the immigrants themselves pay for the enforcement of the Immigration Law, including the medical examination. The head tax of four dollars apiece which was collected from the 913,880 immigrants admitted in 1911 was $3,655,513 and the whole amount appropriated for the enforcement of the Immigration Act was $2,575,000, leaving a balance of $1,080,721, which was turned into the national treasury. Of the amount appropriated, $151,659.27, or 16 *cents for each immigrant examined*, was for the medical examination, at home and abroad.

It was never intended that the head tax should be a source of revenue, and it seems little short of criminal that with this large balance the Commissioner of Immigration at Ellis Island should be obliged to say in his annual report for 1911: "The law for the exclusion of young, feeble-minded children is virtually a dead letter and the Ellis Island authorities have not the means at their command to vitalize it."

The pay and allowances of twenty medical officers of the Public Health Service, especially trained in psychiatry, for duty at American ports would be $75,000 per year, or about 8 cents for each immigrant examined. If to this were added the pay and allowance of ten such officers stationed at foreign ports, and thirty detailed from time to time upon vessels carrying immigrants to this country, the total additional cost of providing an adequate and effective mental examination of immigrants would be less than $225,000 per year, or about 25 cents for each immigrant examined—one-sixteenth of the present head tax. Surely this is a small sum for the federal government to deduct from the proceeds of the head tax to protect the mental health of coming generations of Americans. *It about equals the cost of maintaining, for their hospital life,* 100 *of the* 1750 *insane aliens who are admitted to New York State Hospitals each year.*

It is not possible, in this chapter, to describe the methods now employed in the mental examination of immigrants at Ellis Island, but the difficulties of the task of the medical officers of the Public Health Service who perform this duty must be apparent to all who have had experience in the diagnosis of mental diseases and defects. The incredible ignorance of representatives of some immigrant races adds very greatly to the difficulties of this work, and there is a constant tendency to lower that standard by which intelligence is estimated. For this reason efforts have been made to establish "norms" for different races, by the use of modifications of the Binet-Simon tests. It is proposed to examine a very large number of representatives of these backward races and to establish standards for children and for adults. This work is of so much importance that it merits special appropriations.

The Deportation of Aliens from American Institutions.—The present Immigration Law provides for the return within three years of aliens

who become a public charge from causes which existed prior to their arrival in this country. Such a provision can never repair damage resulting from an ineffective examination at ports of entry. It is far less humane to deport an alien who has entered the country and perhaps brought his family from Europe than it is to deny him admission upon his arrival. There are many obstacles to the enforcement of this act, and the provision that prior causes must be established has led to endless disagreements between the governmental authorities who must effect such deportation and the institutional officials who care for dependent aliens. E. S. Elwood, of the New York State Charities' Aid Association, has suggested an amendment to the law providing that such aliens shall be deported unless it is shown that the causes of their dependence arose "subsequent to their landing." In this way the burden of proof would be shifted.

Protecting Immigrants in the United States.—In spite of the adoption of such suggestions as those made for the more effective exclusion of insane and mentally defective immigrants upon their arrival and of other measures much more stringent, it is certain that some immigrants already insane, many strongly predisposed to mental disease through unfavorable heredity or other causes and a great number of immigrants not fitted to withstand the stress to which they are certain to be exposed in this country, will be admitted.

Many conditions, some of them due to immigration more than to any other cause, make the lot of the immigrant of the present time harder than that of the immigrant of twenty years ago. It is certain that outside of our large cities, where there are alien colonies of nearly all immigrant races, the Slavic, Hebrew, or Italian immigrant is generally neglected, and in some instances shamefully exploited by those among whom he comes to live.

The need of establishing a second line of defence, as well as the requirements of humanity, demand that we should exercise far more supervision over the welfare of immigrants after their arrival in this country than we do at present. There seems to be a general impression that however unsanitary their surroundings or however heavy the burdens placed upon them, immigrants are in some way especially fitted for such hardships either by nature or previous experiences. Of course this assumption is wholly without justification and it is time that the social, economic, physical, and moral welfare of these newcomers should receive the earnest attention of the Federal and State Governments and of societies and individuals.

The public is just beginning to be informed of the ways in which immigrants are exploited here by employers of labor, their own countrymen, and the foreign steamship companies, whose skilful and powerful manipulation of immigration does not by any means end with the arrival of their passengers in this country.

Jane Addams, in "A New Conscience in Regard to an Ancient Evil," describes the fate which awaits many immigrant girls in our cities. The report of the Chicago Vice Commission on "the Social Evil in

Chicago" and the reports of the Immigration Commission on the "White Slave Traffic" and "Steerage Conditions" give many details of the dangers which assail immigrant girls from the time they leave their homes in Europe.

Distribution of Immigrants.—No other single factor affects the recently landed immigrant more adversely than the tendency to congregate in cities. Overcrowding, the spread of venereal diseases, unemployment or unsanitary working conditions, and many other evils are due in many cases wholly to the immigrants' unfortunate choice of an environment. The remedy is *distribution*, upon their arrival if possible, but soon after arrival if it proves impossible to divert the immigrant from the "address" which to him is America. This is not a new idea, for it has been realized for some years that both the immigrant and the community would be benefited by some plan for distribution which could accomplish by artificial means what natural forces brought about in the days of the old immigration. It has proved an exceedingly difficult matter to devise a satisfactory plan for the accomplishment of this result, however, for it must be remembered that the drift of population city-ward is by no means confined to immigrants or the foreign-born.

Distribution would seem to be very largely a function of the Government, and in 1907 a division of information and naturalization was erected in the Immigration Service and attempts were commenced to distribute arriving immigrants. A number of the agricultural States have employment bureaus which are chiefly interested in securing farm laborers, and it has been suggested that representatives of State immigration and employment bureaus be stationed at all large ports of entry. Persuading single male immigrants or married men who have left their families in Europe to go to agricultural communities as farm laborers does not solve the problem of distribution, however advantageous it may be to the farmer who is in urgent need of help to gather his crops. Farm labor is precarious employment, which usually lasts only a few months, and the establishment of a large roaming population of single men dependent upon such uncertain employment would not be wholly desirable. The kind of distribution which is needed is that which diverts immigrant *families* from the cities to communities where they will be welcomed as settlers and where their neighbors will be willing to help them a little in the first trying years. Just how this is to be done most effectively is difficult to say. It will require the earnest efforts of the Federal and State governments, and of disinterested individuals and organizations.

It is certain that success in distributing immigrants to more suitable environments will reduce the number of aliens admitted to institutions of the insane.

The Need for Adequate Study of the Medical Problems of Immigration.—The utter inadequacy of the data available regarding conditions of amalgamation of the immigrant races in this country has been shown. It is not too late to commence studies of this subject, but the difficulty

of such studies will increase very rapidly. William Z. Ripley says that we have to deal not with the fusion of different races by the slow and almost imperceptible processes of time, as in European countries, but "we are called upon to traverse a lava field of population suddenly cast forth from Europe and spread indiscriminately over the new continent."

Such studies as those suggested are properly the function of the federal government. But if they are undertaken under such auspices, their extent and the resources made available will have to be determined by Congress—and, in Congress, immigration is a political question, not a medical or social one. Such studies would seem to constitute an appropriate field for some of the great endowed foundations of this country for the advancement of knowledge. Why should an expedition be sent to Thibet for ethnological studies while in New York City and in the small western towns just receiving the advance guard of the new immigration the different steps of the most remarkable ethnological experiment in history are under way, with no scientific observations being made? Everyone who has studied immigration problems from the scientific standpoint has been impressed with the tendency which exists to drag such studies to levels where national or religious pride, the selfish interests of those who profit or lose through immigration, and political considerations are controlling factors. Nothing could be more destructive to the spirit of scientific inquiry. In pathological and clinical researches we are concerned only with the truth, and when our researches enter the wider field of social conditions there seems to be no reason why we should have a different aim.

Some of the studies quoted show how fruitful a field the study of racial psychopathology is. It is very desirable that such studies be greatly extended. G. H. Kirby's valuable paper on race and psychoses in the admissions from New York City to the Manhattan State Hospital should be supplemented by observations in rural communities. In this way we may learn something of the relation of environment, occupation, etc., to racial conditions. Such studies should also be greatly extended in their scope, and they should not be left to the few who are interested enough to give a portion of their time to them; they should be undertaken by some organization fully capable of carrying them to a successful conclusion. The clinical as well as sociological value of the results of such studies will amply repay their cost.

Conclusions.—It is needless to recapitulate what has been said regarding the means by which we may protect our race from evils resulting from the admission of insane and mentally defective immigrants and those of a low mental type, but it seems worth while to state that the most pressing need is not for better immigration laws but for facilities for enforcing those which we have. The needs are for a sufficient number of medical officers of the U. S. Public Health Service with special training in psychiatry, for sufficient interpreters and for adequate and sanitary detention quarters at all large ports of entry.

With such facilities much can be done while awaiting needed changes in the laws.

Next to these needs comes that of instituting, before it is too late, careful studies of the medical problems of immigration.

Another urgent need is for better aid and protection for recently landed immigrants. More attention to their welfare, distribution to environments more suitable than our great cities, and protection of immigrant girls during their voyage to this country and after their arrival will yield results as beneficial to us as to the immigrant.

It is also essential that the consideration of the medical problems of immigration be kept absolutely outside of the field of politics and that the efforts of selfish interests to control these matters should be met, at all times by determined resistance.

Finally, if we are to solve these difficult questions with credit to our civilization, we must see that efficiency and humanity have equal place in the enforcement of our present immigration laws and of any which may be devised to remedy certain defects. The examination of immigrants by American medical officers must be made nearer their homes and far greater precautions must be taken for the safety of the helpless insane and mentally defective immigrants who are rejected upon their arrival or deported from our public institutions.

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CHAPTER VII

ALCOHOLISM AND THE ALCOHOLIC PSYCHOSES

By H. W. MITCHELL, M.D.

Etiology.—The treatment of alcoholism is a sociological as well as a medical problem in which drug therapy plays but a minor part. The causes that tend to produce the condition are almost as varied as human activities and emotions, and treatment to suit the individual case must be equally varied. The penologist considers that punitive treatment is demanded and if vigorously applied it would go far to reduce alcoholism. Others go to the opposite extreme and regard all alcoholics as diseased persons, and hopeful subjects for medical treatment. Again, the common belief is that alcoholism is due to a habit which the subject can and should control by the exercise of his own initiative. A more tolerant and useful view of chronic alcoholism is one that considers first all the factors in the life of a given individual that have been operative in producing the condition, and while not inclined to hold him generally blameless, makes allowance for the part that social customs, disease, and morbid mentality have played in the etiology. This conception of alcoholism makes each case one for individual study and individual treatment, and calls not only for amelioration of physical symptoms but for correction and regulation of mental and social life. The degree of mental and moral defect, which is a cause and also a result of the alcohol habit, and the duration of the condition can introduce so many different considerations that treatment must be considered in its broadest significance from prophylaxis to the custodial care of end stages. The individual must be studied and understood apart from the alcohol habit.

Alcoholism and Punitive Measures.—A preliminary consideration of any classification will meet at once the problem of separating drunkards into two groups, the one to be treated medically and the other to be dealt with by punitive measures. Whether or not justifiable, this practical differentiation exists and is approved by custom and public sentiment. For the purposes of this article it is not necessary or advisable to consider the relation of alcoholic habits to the commission of crimes other than drunkenness. The inebriate who under the influence of alcohol, to a greater or lesser degree, commits crimes against law and order will be placed, perhaps justly, in the criminal class, unless careful examination of the individual shows a degree of mental defect that justifies a different classification. The separation of this group naturally becomes a medical problem. The treatment of simple inebriety as a crime punishable by fine and imprisonment to be applied indiscriminately by police methods alone, deserves more attention from the

medical profession than it has received. The better treatment of the inebriate, in the matter of prevention and restoration, requires that there shall be a wider knowledge of the causes and effects of alcoholism from the medical point of view, and that the facts concerning the patient's temperament, mentality, and habit formation be ascertained and individualized rational treatment be adopted in each case of inebriety. The treatment of inebriety as a criminal act to be prevented or corrected by punitive measures will be followed until medical protest is constant and general against such an illogical and futile procedure.

The report of the Board of Prison Commissioners of Massachusetts for the year (1908) shows that during that twelve-month period 20,779 persons were committed to the penal institutions of the State for the simple offence of drunkenness, and of this number 13,548 had been committed from two to over fifty times previously. These figures show conclusively the inefficiency of police court and prison methods in handling a problem that is of so much moment both to the victims and the public, and should inspire the medical profession with keener interest and stimulate every general practitioner to more active work in preventing the human and economic waste produced by alcoholism. The report of a Massachusetts Commission appointed in 1910 to investigate the increase of criminals, mental defectives, epileptics, and degenerates, presents the following conclusion regarding alcoholism:

"It is not possible to present reliable statistics on this point (the role of alcohol as a factor in producing the conditions mentioned), but our investigations and the testimony before the commission strongly emphasize the belief that there is an intimate relation between the abuse of alcohol and the amount of crime, insanity, pauperism, and degeneracy. Indeed, it is the belief of this commission, based on long personal observation, that the abuse of alcohol, directly and indirectly, does more to fill our prisons, insane hospitals, institutions for the feeble-minded, and almshouses than all other causes combined. We are unable to formulate any recommendations as to legislation which we believe would materially modify this deplorable condition. It is probable that long-continued education of the young as to the mental, moral, physical, and economic results of the abuse of alcohol, will be the most effective method of dealing with this subject."

When men of clear thought and wide experience with alcoholism and its effects reach these conclusions their views should carry weight. Their skepticism regarding the adequacy of any legal measures in modifying the effects of alcoholism is coming to be shared generally by those studying the problem. The opportunity awaits the medical profession of demonstrating the value of general prophylaxis, methods of prevention or restoration modified by individual needs, and rational custodial care of the hopeless victims of inebriety. The subject of the treatment of alcoholism must be approached with a broad conception of etiological factors, which should include a consideration of the influence of environment, constitutional defect, or hereditary tendencies, and the individual reaction to alcohol.

Use of Alcohol in Moderate Amounts.—The use of alcohol in moderate amounts would be considered by many a matter to be treated independently of any study of alcoholism. It would surprise, doubtless, many temperate people to learn that their social customs could be considered a cause of alcoholic degradation in others. It is quite admissible that a man with good psychoneurotic integrity, schooled in habits of self-control and conservative action, may, for the sake of conforming with social customs or from a desire for the euphoria alcohol brings, drink for a lifetime, only in moderation, and that his health and efficiency may not be affected to an appreciable degree. It is difficult to convince one who uses alcohol with so little damage to himself of the remote but actual connection between his example and the burden of wasted lives, of inherited weakness borne by individuals, families, and the public as a result of alcoholism. His example helps to establish social custom, however, and social custom, in all grades of society, is largely responsible for the formation of the drinking habit by those fated to become its victims. Of any given number who in early life begin the use of alcohol an unknown but not inconsiderable percentage will surely suffer from the effects of alcoholism. It cannot be emphasized too strongly that social custom, the moderate, temperate use of alcohol, is the parent of inebriety and its attendant evils. This fact must be understood and believed by those responsible for the welfare of inebriates released from temporary confinement. Few are capable of sufficient self-control to withstand the temptations that prevail among the associations to which they have been accustomed, unless the influence of example and custom is offset by watchful care and help that tend to develop new ideals and better associations. Many histories might be cited showing the respectable and apparently harmless beginning of the drink habit, through compliance with the custom of social drinking, that has finally culminated in physical or mental ruin. The inebriate should not be regarded as a social outcast, wholly responsible for his fate. He is largely the product of social life, temperament, environment, and a peculiar reaction to alcohol, all conditions over which he exercises no control, and which combine to produce his downfall. The influence of example, especially in early life when drinking habits are most apt to be formed, cannot be overestimated.

In all social grades the use of alcoholic stimulants is linked with customs and usages in a manner that seductively invites the young to participation. The influences which tend to develop habits of abstinence are feeble and comparatively ineffective and make little appeal to the sentiments. Home training, by precept and example, combined with education of the young concerning the reduction that alcohol causes in physical and mental efficiency, are the only measures that can be expected to protect them from the influence of custom. Alcoholism is very generally a condition that has its inception in early life. Prevention of the habit formation in that period should be the aim of all who are endeavoring to combat the results of alcoholism. Treatment of the later effects is pitifully inadequate to prevent the ruin that

follows alcoholic indulgence. Suggestive figures concerning the influence of custom or environment in early life are given by Lambert from a study of alcoholic cases at Bellevue Hospital. He found that in 259 cases of alcoholism 70 per cent. formed the drinking habit before twenty-one years of age, and that in almost all cases there was a history of intemperance in other members of the family. The diversity of reasons which will be given by alcoholic patients as causes for their drinking is too varied for discussion. But the influence of example, the desire to imitate associates, is by far the most common reason assigned by patients able to analyze their motives. In frequency and importance it overshadows all other causes of inebriety. The neophyte does not admire the drunkard or broken-down inebriate. He merely seeks to imitate the persons who use liquor in the way approved by social usage.

Alcohol as a Stimulant.—An appreciable number of people give a history of having begun the habit of using alcohol through a mistaken conception of its value as a stimulant, or force producer, which would aid them in the daily performance of tasks beyond their strength. The delusion that alcohol increases the output of energy in the human machine is widely entertained by people in all walks of life, and is perpetuated by custom, precept, and skilfully worded advertisements concerning the strength-giving properties of various alcoholic beverages. This teaching appeals strongly to the men and women obliged to labor beyond their strength in mental or physical tasks in arduous occupations. Vocations which are characterized by irregular hours, by great mental or physical stress for indefinite periods, furnish a temptation to the use of alcohol for the stimulus needed to complete a given task. One patient of the writer's was a newspaper man who found his strength overtaxed by the conditions of his work. Until then a total abstainer, he began the habit of using alcohol moderately in the mistaken hope that it would aid in his work. The habit quickly developed until work was impossible without the daily use of alcohol in large quantities, that soon produced symptoms requiring enforced treatment. On the other hand, an idle pleasure-seeking existence is almost surely followed by the formation of the alcohol habit.

The patent medicine nostrums, advertised so widely as warranted to cure nervous ills, unfortunately appeal to people of nervous instability, peculiarly susceptible to the influence of alcohol, which these preparations contain in large and varying proportions. Being practically substitutes for cocktails, their use is often the source of habit formation. Although too frequently assigned as causes for the drinking habit, grief and trouble undoubtedly are responsible in certain cases. The use of alcohol for medicinal purposes is very often given as the starting point of the habit. The growing distrust among the medical profession, of alcohol as a medicinal agent is evidenced conclusively by the decreased amounts used in the larger hospitals and the lesson therein taught is being applied in general practice. But the practice of centuries is not easily overcome, and the faith with which people turn to alcoholic stimulants,

in all forms of illness, for their supposed therapeutic value is almost universal and cannot be easily destroyed. One particularly vicious example of misguided home treatment is commonly practised in the administration of alcohol for dysmenorrhea. Any relief of symptoms that may follow the use of alcohol in this condition at one period will naturally be sought at the regular intervals, and the alcohol habit in this way have an easy inception.

Occupational risks must be considered in their relation to habit formation. Daily work which brings the individual into constant contact with the use of alcoholic beverages is peculiarly liable to produce chronic alcoholism, as the policy of insurance companies in the acceptance of such risks amply demonstrates. Racial and religious influences exert a powerful influence upon the development of the individual that is strikingly shown in our own community where the freedom of the Jew from the effects of alcoholic inebriety is well known. They are, as a race, commonly afflicted with the psychoneuroses and probably owe their freedom from alcoholism to early and correct training regarding the nature and use of alcohol, which is perpetuated by racial solidarity. It is impossible to enumerate all the causes that in a given life may unite to produce inebriety, for as White has aptly stated: "The causes of drinking are infinitely varied and intimately bound up in the heart of man—at once the expression of his strength and his weakness, his successes and his failures."

We can formulate some opinions concerning the usual methods of habit formation and indicate the common routes to inebriety, but generalizations do not apply to the individual inebriate who presents a far more complex problem than the mere study of habit. In considering the individual we have to interpret the peculiar effect of alcohol in his case and to determine why a given amount of alcohol can be used without appreciable harm in one person when the same indulgence is followed in another by alcoholism in some of its varied expressions. The question also immediately arises, Why can one person use alcohol in moderation and another only to excess? And the answer must be sought in an analysis of the constitutional peculiarities of each person, the influences surrounding him and moulding his activities, and his individual idiosyncrasy for alcohol. We must appreciate that the alcohol habit may be formed by persons exhibiting no appreciable constitutional defect and be continued by them to an extent that produces nervous or mental disease. In such persons the alcohol habit has produced disease for which no other cause is apparent. In many other instances habits of intemperance appear to be due to either morbid temperament or actual mental trouble, and in such instances alcoholism becomes either merely a symptom of the underlying condition, or a factor that combines with other causes to produce a complex diseased state. The following abstract from the history of a manic-depressive case well illustrates how alcoholism may develop as a symptom of mental disease. The patient was a man, aged fifty-five years, who used liquor rarely in early life. He had been hard-working and successful.

The family gave a history of four periods of excessive alcohol indulgence about two years apart, each one lasting many months. During each period the patient was active, sleepless, irritable, pugnacious, wasteful, extravagant, talkative, and boastful. He drank day and night, coming out of a drunken stupor only to show the symptoms mentioned and to start on another debauch. The family lived with him through these times as best they could, until the drinking ceased and the patient showed a mild depression, with retardation and self-recrimination that lasted for several months longer before he appeared well, resumed work, and practised total abstinence until the next recurrence of a hypomaniacal state. During one of these periods he came under the observation of the writer, and displayed the typical symptoms of hypomaniacal conduct that in turn were followed by a well-defined mild depression.

Alcohol and Mental Depression.—Another case may be cited to demonstrate the influence that states of mental depression sometimes exert upon the alcohol habit. The patient was a man, aged fifty years, who for twenty years, at intervals of about four years, had drunk excessively for months at a time. In early life he had been abstinent and the family had no knowledge of any alcohol habit until the first outbreak, during which he drank continuously and excessively. The family thought that alcohol made him sad and unhappy, and he was noticeably dull and inactive during the prolonged sprees, as they were called. The alcoholic indulgence would stop after a time and for several years between attacks he was believed to be a total abstainer. Finally he was sent to a hospital to prevent his excesses. There were none of the usual mental symptoms of alcoholism, but he did exhibit the characteristic depression, psychomotor retardation, and difficulty of thinking seen in the depressed states of manic-depressive insanity. He recovered with good insight and gave a graphic account of his efforts to combat the depression with stimulants, for which in his normal mental state he had an aversion. Varying emotional conditions in cases showing such slight mental disturbance that the true character of their indiscretion is not recognized by relatives are frequently associated with prolonged periodical drinking.

Dipsomania.—The form of paroxysmal drinking described as dipsomania by Kraepelin and Gaupp is considered by them as allied to the epileptic phenomena. The term dipsomania as generally used has a much broader meaning and is made to cover nearly all forms of persistent inebriety. Prodromal symptoms of true dipsomania are often seen in a state of depression, anxiety, bad head sensations, and are followed by an uncontrollable impulse to drink persisting for indefinite periods often terminated by custodial care of the patient. Automatic states are frequently seen in this group of pathological drunkards with complete loss of memory or with only hazy dream-like recollection of events later. The boundary line of symptoms which distinguish this type of alcoholic is not well defined. Patients having long periods of total abstinence ended by apparently causeless and insensate excesses,

with or without the accompaniment of phenomena that suggest epileptic equivalents, are properly classed as dipsomaniacs, or persons with a pathological and irresistible impulse to drink, which is not controlled by any ordinary restraining influence.

Alcohol and Epilepsy.—The relation between alcohol and epilepsy should not be dismissed with a reference to the obscure and somewhat theoretical connection that may account for the dipsomaniacal tendency. It is a well-known fact that epileptics are peculiarly susceptible to small amounts of alcohol, and, further, that the worst forms of explosive drunkenness are seen in epileptics. Fortunately, epileptics as a class are not inclined to inebriety. Rarely is a history of inebriety obtained from confirmed epileptics committed to hospitals. From personal observations upon several thousand drunkards committed to the State Farm (Massachusetts) it can be stated that epilepsy was a condition rarely encountered. In a later insane hospital experience about 10 per cent. of the patients suffering from alcoholic insanity have given a history of one or more convulsions during a drunken debauch, and in none of these cases has the writer observed recurrence of the convulsions during hospital residence of the patients. Alcohol, even in small quantities, makes many epileptics worse and their fits more frequent. One or more convulsive seizures may accompany alcoholic excesses with cessation of seizures when alcohol is eliminated. Whether these convulsions are produced by a toxic condition, as in uremia, or are due to the fact that alcohol tends to develop a latent tendency to epilepsy is uncertain. The convulsions certainly cease in most of these alcoholic cases if alcohol is withdrawn. Its continued use by patients with this tendency may result in confirmed epilepsy developing in midlife. The ratio of such cases to the total number of epileptics will be very small.

Dana states that alcohol was considered an etiological factor in only about 5 per cent. of the cases coming under his observation. The writer's experience would confirm this estimate, which is much lower than given by many observers. Of 181 first commitments of epileptic patients at the Massachusetts Hospital for Epileptics in 1911 only one patient had alcohol assigned as an exciting cause and in only two other cases was it considered even a predisposing factor. Exceptional care was taken in securing personal histories, and the results tend to demonstrate the infrequency of the alcohol habit as a cause of epilepsy in the individual. Unfortunately the tendency to epilepsy is transmitted to the drunkard's descendants, a fact generally acknowledged by all observers, and easily corroborated by any study of family histories in epileptic patients. Maudsley states that because of parental intemperance, epileptics "are as much manufactured articles as are steam engines."

Constitutional Weakness and Idiosyncrasy and Alcohol.—The proper relation of a constitutional weakness or peculiarity to alcoholism cannot be accurately estimated. Many inebriates during their sober periods appear to be capable and normal persons, but a charitable view would

incline to regard them as pyschoneurotics who have been weeded out of the number of moderate users by the selective action of alcohol, and to consider that their inebriety is simply an expression of a fundamental fault which might never have been brought into prominence but for the alcohol habit. We may reasonably assume that inebriety will be manifested in persons with a weakened resistance to alcohol which may be shown in varying degrees from the idiosyncrasy of certain persons to small doses of alcohol to the mental breakdowns that occur later in life. Neither extreme represents the average effect of alcohol, and the various results of the habit are due to the combined influence of alcohol and psychoneurotic taint or weakness. It is quite possible that alcoholism may be the result of long-continued indulgence in persons relatively normal, according to all known standards; but any extensive association with the victims of alcoholism leaves the impression that they are, as a class, constitutionally different from other persons, inappreciable as the difference may be in some cases.

The very failure of inebriates to carry out their resolutions, made in all sincerity and with good intention, is but an expression of this defect which a single lapse from total abstinence brings into prominence. The writer has seen too many men leave confinement with hope for their future and confidence in their ability to remain temperate, only to return shortly after an alcoholic debauch and listened to their excuses and self-reproach after such experiences too many times to believe they were endowed in the same measure as normal persons with what we term free-will, or that their reaction to a single drink is similar to that shown by the average man. After making an allowance for the mental and moral deterioration that follows prolonged indulgence, we can still agree with Neff in his conclusion that "Addiction to alcohol is a symptom of an unstable nervous system and the contrary view expressed by the laity is not justified by clinical experience or observation." The desire for intoxicants, the reaction to alcohol, and the capacity for self-control are not adjusted by rule, but are modified in each person by unknown factors. Any treatment of alcoholism must be based upon a knowledge of the deviations from normal tendencies which are so commonly exhibited in this trouble, and an appreciation that normal responses cannot be expected to remedial efforts.

For the sake of a practical consideration of the relation of habit and neurotic temperament we can separate the alcoholic patients into two groups by a somewhat arbitrary division. In the first we can place the persons with obviously defective make-up, the dipsomaniacs, those suffering from psychoses and also a small number of patients perhaps of normal constitution originally, but afflicted with some of the accidents of life, such as syphilis or cranial injuries, which so notably reduce the resistance to alcohol. Successful treatment of patients in this group can be expected only when the condition that accompanies, or is possibly responsible for the alcoholism, is appreciated and therapeutic measures adopted to meet the requirements. Among this class of patients will be found most of the incorrigible inebriates who require

custodial care for a large portion of their lives. The other group will contain the alcoholics who show little if any appreciable constitutional defect, but in whom defect is suggested by the loss of self-control that results from a long-continued vicious habit, and produces an inability to withstand the craving for alcohol which comes from a disordered nervous system. In this latter group of patients the habit must be considered the primary and essential cause, and its control is the principal therapeutic consideration. If the habit has not progressed to a point where organic disease has resulted, there is much hope that the immediate effects of alcoholism may be overcome and that habits may be corrected in a considerable percentage of patients. Failures should only encourage the medical adviser to more active effort in promoting total abstinence, which is the only safe course for the person who has at any time of life broken down from alcoholism. Failures must be expected even in the most promising cases, for as Tanzi has said: "Alcoholism implies the abuse of alcohol, but with this external factor there are always associated certain internal factors, in the form of predispositions or special congenital or acquired susceptibilities, which, on the one hand, determine the vicious habit, and, on the other, contribute to the production of the morbid reaction." The extent of the constitutional defect largely determines the result of efforts to correct the habit.

Alcoholism and Heredity.—Varying opinions concerning the influence of heredity in alcoholism are given, some showing high percentages of alcoholic habits in ancestors, and suggesting the conclusion that alcoholism may have an hereditary transmission. Alcoholism in an ancestor does not prove that the condition can be transmitted. We can be certain that the children of drunkards are especially liable to mental defect, insanity, and the grave neuroses, and that they have a lowered resistance to alcohol. Family habit and example tend to the formation of drinking habits in early life, and alcoholism commonly follows because of the weakened, unstable, nervous system of the offspring, especially liable to excesses of all description. But this is not hereditary transmission of alcoholism. It is a common lay opinion that a craving for alcohol is a direct transmission from parent to offspring, and this opinion is often responsible for a certain unwarranted fatalism, displayed by both patient and friends, toward the futility of struggling against the inevitable. It is altogether improbable that there is any such transmission or that children born of drunkards are more liable to alcoholism than other neurotic progeny subject to the same early training and environment.

Pathology.—There is a great discrepancy between traditional belief concerning the morbid processes produced by alcohol and the actual results of observation by clinicians and pathologists combined with the deductions drawn from animal experimentation. Different observers draw widely differing conclusions, adding to the uncertainty that characterizes our present knowledge about this subject. Certain facts founded on observation and experiment in regard to the physiological and pathological effects of alcohol are generally admitted. Locally it is

dehydrating and irritating and destroys cellular life in weak solutions. Internally, in even small amounts, it affects unfavorably the character and quantity of mental work and diminishes muscular energy and endurance. Oxidization and metabolism are disturbed. Small amounts dilate the peripheral bloodvessels and slightly increase blood pressure, while large amounts weaken the heart's action, increase pulse frequency, and reduce blood pressure.

The part which alcohol plays in producing disease of various organs is not easy of demonstration. Animal experiments show that some will die from small amounts, while others will take larger quantities daily for years with little apparent effect. It has not been demonstrated that many diseases popularly supposed to be due to alcoholism can be produced experimentally in animals. Pathological findings are often opposed to earlier teaching. For example, Fahr, in a series of 309 autopsies upon chronic alcoholics, found an advanced cirrhosis of the liver in but 13 cases. Simmonds in 100 autopsied cases of cirrhosis of the liver, excluded alcohol in 14 cases, and had no reliable data concerning its use in 26 other cases. In Fahr's series chronic nephritis caused the death of but 8 cases and was less commonly noted than in hospitals with patients of a better class. Arteriosclerosis was apparently somewhat less common and extensive than in bodies of non-alcoholics of corresponding age. In 71 of his 309 cases no anatomic changes were found to adequately account for death. Baumgarten reports similar findings. The influence that alcohol may have in producing disease of any viscus must be considered indefinitely modified by unknown conditions, and the relation of cause and effect not determined.

Effect on Stomach.—In alcoholism gastritis is a common condition, and chronic changes are frequently observed in the gastric mucosa. We know that 1 to 2 per cent. of alcohol in the stomach contents apparently stimulates gastric secretions, but that higher percentages impair their chemical action and inhibit the proteolytic function of the pancreatic juice even more markedly. Continued use of alcohol commonly perverts the digestive functions and by its irritant action on the mucosa may produce inflammatory conditions which are likely to be followed by permanent anatomical changes. Friedenwald in animal experimentation found that free hydrochloric acid was greatly reduced after giving alcohol for a few months, that gastric ulcers occurred in a small percentage of cases and that chronic catarrhal gastritis was a common, but not constant, condition. Erbstein found that administration of alcohol to dogs for a few days was followed by a cloudy, granular condition of the peptic and ordinary gland cells of the stomach, with fat in the altered cells, and that the lumen of the pyloric glands was filled with yellowish, granular masses.

Effect on Liver.—Fatty changes in the liver are commonly found upon autopsy of alcoholic cases and are also produced in animals by experimentation. The figures regarding the prevalence of cirrhosis in autopsies vary widely. Baumgarten found cirrhosis of the liver in only 6 per cent. of autopsies among hard drinkers. Lambert thinks cirrhosis

not so common as formerly, because of the more general use of malt liquors, but finds it present in some degree in 48 per cent. of the men and 34 per cent. of the women in a series of 125 autopsies on alcoholic patients at Bellevue. In none of these cases was the liver normal. Animal experimentation has as yet failed to prove that true cirrhosis of the liver can be produced by alcohol. Salant has shown that in animals fed on alcohol the glycogen is greatly diminished, and mentions the possible effect of this condition in lowering resistance to infections.

Effect on Kidney.—Widely differing opinions in regard to the effect of alcohol on the kidneys have been advanced. Hultgen, from clinical observation of several hundred cases, concludes that the tissues eliminating alcohol suffer least and finds no clinical evidence of nephritis in 85 per cent. of his cases, 5 per cent. showing only a transient albuminuria. In Lambert's autopsy series, previously mentioned, chronic parenchymatous nephritis was found in about 60 per cent. of the cases and chronic interstitial nephritis in a considerably smaller number. Friedenwald has shown that 30 per cent. of rabbits under alcohol showed a constant albuminuria, with casts in many cases, and lesions at autopsy. Other rabbits with neither casts nor albumin in the urine showed anatomical changes upon examination of tissues. No evidence of chronic interstitial nephritis was seen by him. Fatty degeneration of tubular epithelium, and minor vascular lesions were found. In an experiment on dogs von Kahlden has found similar anatomical changes, and concludes that these lesions might be followed by interstitial changes.

Effect on Respiratory and Circulatory Systems.—The respiratory tract is probably little affected by alcohol. Indirectly, bronchitis, laryngitis, pneumonia, and tuberculosis may result from the lowered resistance and vicissitudes following alcoholism. The changes found in the hearts of alcoholic subjects are unquestionably modified by conditions of other viscera. Lesions commonly reported are hypertrophy, fatty infiltration and degeneration, brown atrophy, and fibrous myocarditis. Clinical observations often show feeble sounds with lowered blood pressure. Animal experiments have shown that alcohol feeding has been followed by fatty infiltration of the heart muscle, which disappears in control animals after alcohol is withdrawn. Neither commonly reported clinical or pathological findings confirm the statement that alcohol is a definite cause of arteriosclerosis or that it is more extensive and frequent than in non-alcoholic patients of similar age. Vasomotor functions are commonly believed to be affected, resulting in dilatation of the small peripheral vessels and passive hyperemia of organs.

Effect on Reproductive Organs.—The organs of reproduction are commonly affected in both sexes. Atrophy of testicles and ovaries has been often reported in young alcoholics. Simonds found azoöspermia in 60 per cent. of autopsied alcoholics. Sullivan reports that in 600 children from 120 alcoholic women 335 were stillborn or died in early infancy, with over 60 per cent. of their deaths resulting from convulsions.

In Friedenwald's rabbit experiments, 9 out of 38 pregnant females aborted, and several died from resulting infection. In several other instances the young died at birth.

Effect on Nervous System.—Clinical evidence alone furnishes abundant proof of the serious damage resulting to the central nervous system from alcoholism, but the connection between cerebral postmortem findings and this cause of mental deviation is often difficult to establish, because of the complicated nature of the question. Gross changes commonly found in chronic alcoholism are hyperemia of the membranes, cloudy thickening and adhesions of the pia, with occasional edema and external hydrocephalus. Pachymeningitis hæmorrhagica is a common finding. Bonhöffer asserts that the central gray matter is a favorite seat for hemorrhagic foci. Microscopic examination shows no specific pathology in delirium tremens, as reported by Bonhöffer, Trömner, Lambert, and others. Changes in the pyramidal and Betz cells are shown by the Nissl method, and are often widely diffused, but are of the character seen in other toxic psychoses. Marchi fiber degeneration is an inconstant finding. Changes in bloodvessels and glia are variable. Minute hemorrhages are common. Neuroglia proliferation, shown by the Weigert method, is less pronounced than in the more chronic alcoholic conditions. In alcoholic neuritis with mental symptoms observers commonly report a diffuse, destructive process involving the entire nervous system irregularly and shown by an acute degeneration of the peripheral nerves, axonal reactions in the anterior horn cells of the cord, and degeneration of the intraspinal fibers. Axonal reactions are also found in the large Betz cells of the cortex, with proliferation of glia cells. In extreme cases Mott has found extensive degeneration of fibers in the crossed pyramidal tract, changes in the posterior spinal ganglion cells, and degeneration in the posterior roots and columns of the spinal cord. Mott concludes that the changes found in this disorder are also seen in poisoning from lead, arsenic, and other toxic conditions, and questions if they are not due to autotoxins arising from a deranged metabolism rather than to the direct result of the agents named.

In experiments upon animals Aubertin and l'Hermite report a paralysis of the lower limbs before death from alcoholism. Groups of anterior horn cells showed chromatolytic changes with glia proliferation, but these changes were not found in the brain. The nerve fibers were practically intact, and the paralysis was due solely to degeneration of cells in the ventral horns.

Berkely reports slight vascular changes of no very definite character in the cerebral blood supply of alcoholized rabbits and an appreciable difference in the nerve cells as compared with controls, characterized by a shrinkage of nearly all cortical cells and outspreading branches, swelling of the dendritic processes, with disappearance of the gemmulæ, and a roughening of the stronger processes of the cell body.

CHRONIC ALCOHOLISM

Treatment in General.—In considering the treatment of chronic alcoholism we must remember that the term alcoholism does not necessarily imply inebriety, that inebriety is not dipsomania, and that alcoholism produces mental disease requiring detailed consideration of symptoms and treatment. What may be said concerning the general treatment of alcoholism usually applies with equal force to the special conditions mentioned. Study of individual cases must be conducted with sufficient care to determine whether alcoholism has produced disease; is a symptom of disease which exists independently of alcoholism, or whether we are dealing with a toxic condition due to habit, and in estimating the probability of successful results from any treatment, the personality must be considered of more importance than the effects of alcoholism. It is impossible in a limited space to discuss methods of prevention or regulation suited to all the varying conditions that are associated with the intemperate use of alcohol. The individual must be studied and treated apart from the effects of chronic alcoholism. The discussion of the adequate treatment of these effects should not be confined to the narrow scope of immediate relief for the patient but should include the important subject of general prophylaxis, medicinal and hygienic measures for the relief of symptoms, methods of moral support and suggestive therapeutics to prevent backsliding, and finally the forms of custodial care that so many victims eventually require.

Prophylaxis.—Prophylaxis is the most essential part of the treatment of alcoholism. If young people could be taught effectively the danger that lies in the moderate use of alcohol the alcohol problem would diminish in importance, and if the patients suffering from the early effects of alcoholism could be prevented from further indulgence the question of treatment for them would end abruptly. If one grants these premises then the question of prevention becomes the major part of the treatment required in the care of alcoholic patients, minor attention being devoted to symptoms.

In alcoholism, as in other chronic conditions, the early adoption of remedial measures determines to a great extent the failure or success of treatment. To check the habit of moderate indulgence, by training, by rational educational methods, and by example, is the only treatment that offers a fair percentage of good results. One drunkard prevented is worth many fractionally saved. This should not be a matter of indifference to the general practitioner of medicine, but failure to appreciate this fact and to act accordingly should be considered a reproach to the medical adviser. Prophylaxis is the aim of modern medicine. Medical protest against the use of alcohol will be effective when it comes from a united profession and is presented in a way that appeals to young and old, to all who wish to secure for themselves the maximum output of physical and mental energy, and to avoid the many evils that may

follow the inception of drinking habits. Presentation of this view, logical and convincing, is as much a duty of the family physician as to teach the danger to others from a tuberculous member of the family, or the methods to be followed in preventing the spread of diphtheria among a collection of children, or the proper dietetic regimen for a diabetic patient. The physician finds an eager, receptive audience when these latter facts are presented because the arguments appeal to the instinct of self-preservation. Medical advice concerning the use of alcohol should be equally positive and convincing. To have influence it must not be half-hearted and perfunctory, but must be believed by him who gives it. It should demonstrate clearly that the varied and appalling effects of alcoholism follow moderate drinking with the same certainty that disease follows exposure to infection. Many persons may be exposed to infection and escape the consequences even as many may not suffer from moderate alcoholic indulgence, but that is no argument for the perpetuation of a custom that inexorably exacts its toll in ruined lives. The arguments that may be presented in an attempt to justify the use of alcohol as a beverage are unworthy of serious consideration when properly contrasted with the medical and sociological reasons for abstinence. It is difficult to overcome the inertia of indifference either in an individual or a people.

It required years of effort and popular exposition to awaken the public mind to an appreciation of the nature of tuberculosis and to a regard for the methods of its prevention. In this work the medical profession led and directed the efforts. Here is another opportunity for similar leadership in a campaign against a danger equally widespread and destructive of human life and efforts. Gradually the leaders of the medical profession are awakening to an appreciation of the facts relating to alcoholism and its consequences. Their authoritative advice is needed to supplement efforts at prevention now being made ineffectively. Their protest against present customs must be so presented as to appeal to the self-interest of people, not alone those who are in danger of alcoholism, but to the great body of moderate drinkers. The young are especially entitled to instruction concerning the dangers that lie in drinking. Until there is wider knowledge in regard to alcoholism and a more general application of this knowledge, great difficulties will be encountered in the care of alcoholic patients who, in their efforts at self-preservation, now find themselves so commonly opposed by all social usages and associations.

Special care should be given both to prevention and to the early correction of habits in persons with poor heredity, with neurotic tendencies, and in all with an idiosyncrasy for alcohol. Such persons should be convincingly told that moderate drinking has for them dangers which are real and to be feared. Unfortunately the prevention of alcoholism is rendered well-nigh impossible under ordinary conditions. Little attention is given to the subject in the average household, drinking customs are prevalent everywhere, "wild oats" are expected and condoned in early years, and habits are formed and continued without

interference until the person becomes a troublesome inebriate or is broken in health before correction is attempted.

When medical advice is sought in cases of chronic alcoholism the first measure for consideration is the withdrawal of alcohol. Attempts to regulate the habit while the patient remains at home or is trying to carry on work or business are usually unsatisfactory and ineffective, especially with patients accustomed to the daily use of alcohol. When it is withdrawn there is often a mental and physical distress that requires more self-control than the usual alcoholic patient is capable of displaying to refrain seeking the immediate relief obtained by further indulgence. Hospital or sanitarium care is always desirable and commonly required. Self-control cannot be expected, for the patient would not require treatment for alcoholism unless too weak to withstand the temptation of drinking. Except in rare cases, with marked neurotic traits, the deprivation of alcohol is not followed by the distress seen in the withdrawal of morphine or cocaine, and when seen it is not prolonged. It is best treated by rest in bed, by regulation of the diet to meet indications, by vigorous catharsis, by the sparing use of sedatives, and by warm baths or packs that relax the vasomotor system.

Therapeutic Treatment.—There is no specific drug "cure" for alcoholism and no rules can be formulated for general medicinal therapy. The most that can be expected from drugs is the amelioration of symptoms while the readjustment of functions is aided by withdrawal of alcohol. Most cases will do very well by following the simple measures mentioned. Others may be aided by some of the many methods recommended by physicians accustomed to the treatment of simple alcoholism. Whether atropine, hyoscine, strychnine, or nitroglycerin helps to modify symptoms cannot be determined except by trial, after consideration of the indications for choice of these drugs, varying so much in their physiological action, and yet all being so often recommended for general use.

The Towns-Lambert Treatment.—In the care of cases with marked craving for alcohol the Towns-Lambert treatment is strongly recommended by Lambert for its influence upon this symptom. He clearly states that its effect is confined to the relief of symptoms following withdrawal of alcohol, and in no sense should it be regarded as a "cure." While most urgently recommended for morphine and cocaine habitues he adopts it for alcoholics with gratifying results. As reported by others the beneficial effects are most marked in cocaine and morphine cases, or when these drugs are used jointly with alcohol. The treatment is somewhat involved, and is limited in its application to the first few days following the withdrawal of alcohol. The basis of the treatment is the following prescription.

℞—Tincturæ belladonnæ (15 per cent.)		62 grams	ʒij
Fluid extracti xanthoxyli,			
Fluid extracti hyoscyami	āā	31 grams	ʒj

The use of this belladonna mixture is to be supplemented by a purgative course which is an essential part of the treatment. For catharsis he uses the compound cathartic pills of the pharmacopœia, blue mass in five-grain doses, and castor oil. From four to eight drops of the belladonna mixture are given hourly, increasing the dose by two drops every six hours. The maximum dose is fourteen to sixteen drops. With the initial dose, five compound cathartic pills and five grains of blue mass are given simultaneously. At the end of twelve hours, three to five pills are given and repeated at the twenty-fourth and thirty-sixth hours. By this time the stools should have a bilious, liquid green appearance, and an ounce of castor oil should be given by the forty-fourth hour. Symptoms of belladonna poisoning should be followed by reduction in the amount of the mixture given, which is ordinarily discontinued in forty to forty-eight hours. In elderly or severe cases alcohol is recommended for the first twenty-four hours, but not longer. Hypnotics and cardiac stimulants may be required if the patients are restless and feeble.

This vigorous medication is intended merely to overcome the craving for alcohol and is but symptomatic treatment. Improvement in these symptoms usually follows abstinence, without serious consequences, whether or not drugs are freely employed. The cessation of an alcoholic craving but marks the beginning of rational treatment for these patients. The period of enforced abstinence under supervision can rarely be too prolonged. Recognition and treatment of any underlying physical ailment is a most important step, too often overlooked in the treatment of alcoholism. Daily life and activities should be regulated to suit individual cases. Freedom from work or excitement is essential until physical and mental tone are restored. The diet should be simple and any digestive disturbance should receive attention. Open-air exercise is one of the most important requisites in treatment. Non-alcoholic tonics only should be administered. A few hours of natural sleep are better than many hours under hypnotics. Laxatives should be used regularly. Hydrotherapy and massage are valuable measures. Medicinal therapy is, ordinarily, wholly insufficient and must be supplemented by measures that appeal to mind and reason, if drunkenness is to be corrected.

Proprietary "Cures."—The great numbers of self-styled "cures" that are exploited for the alleged treatment of alcoholism, and the actual enrichment of their promoters, are recommended by many practitioners who, from ignorance or indifference, are thus giving tacit approval to quackery. Doubtless many think that it is useless to waste time and effort in attempts to reform drunkards and are only too glad to secure personal relief by turning the patients over to persons whose promises of speedy cure are so alluring. Especially vicious and futile are the offers made to furnish remedies that may be administered with or without the patient's knowledge, and guarantee a "cure" without interference with work or business. The dosing of the patient with emetics and giving liquor freely in anticipation of the

resulting nausea is another of the practices resorted to by medical jugglers to "cure" patients. Less objectionable but equally useless is the practice of giving at stated intervals a hypodermic injection of something that is advertised to be an absolute specific for all alcoholics, no matter what their state. For all men and conditions the "cure" is potent. These are the pretensions and methods of the charlatan and should be condemned by the profession. Patients and their friends are deluded into hopefulness by the apparently beneficial results of such methods of treatment, not because of any value in the drug administration, but from the suggestive power of these various procedures. The wonderful promises and mysterious drug administration combine to produce a powerful suggestion upon the minds of certain patients that in itself may prevent further indulgence, and thus trickery is credited with "cures" that in the same cases would follow rational treatment and professional methods of suggestion. However, a lesson can be learned from a study of these methods. If favorable results can be obtained by the unscrupulous and unintelligent charlatan, blindly using suggestive measures, it remains for others to apply intelligently and to perfect methods of mental treatment, which are such an important part of the treatment of alcoholism.

Importance of Suggestive Factors. — Success in corrective efforts, medicinal and moral, will depend upon three factors—the natural temperament and capacity of the patient, the degree of damage wrought by alcoholic habits, and the value of the help given by the patient's advisers. The first two factors are not subject to change; but the third is of the greatest therapeutic importance. After physical conditions have been corrected and the immediate effects of the alcohol have been overcome the real test of therapeutic effort remains. To dismiss the patient at this stage with good advice about the necessity of temperance and send him back to the surroundings and temptations to which he has been accustomed is but to invite failure and recurrence, in a very large percentage of cases. Once a drunkard always a drunkard will be the rule, with a few exceptions only, if the mind of the patient cannot be reached by moral and educational methods that convince the reason and develop the will. Success in this reformation will be accomplished only when a complete change in mental attitude toward the use of alcohol can be effected.

Victims of alcoholism must be convinced that total abstinence for life is the only means of safety for them, whatever others may do. The truth of this conclusion cannot be so emphatically stated by a moral adviser as by a physician. Ordinary temperance arguments do not make any lasting impression. The patient must be convinced of the medical facts concerning alcohol and of the susceptibility which he shows to its influence. His reason must agree that alcohol for him is a dangerous poison and his desire to escape its consequences must then be reinforced by constant, helpful advice and suggestion. Such assistance to be of any permanent value must be rendered by a person in whom the patient has confidence. He must be persuaded that his

adviser understands him and has insight into his troubles before the supporting influence that a stronger personality exercises over a weaker can be attained. Not all physicians are capable of rendering such service, just as all are not capable of being expert surgeons. Help of the character needed to arouse new aims and purposes in life and to maintain their permanency cannot be given by one who is not abstinent in belief and practice. Half-hearted perfunctory advice is useless in the treatment of alcoholism.

Forel has clearly recognized the reasons for the failure of his early efforts to modify materially habits of intemperance in patients until a change in personal views and practice lent force and vigor to his teaching which has since been such a potent influence, not only in treating patients, but in educating both the medical profession and the public. A quotation from one of Forel's articles should be accepted in its meaning and application by all who wish to treat alcoholic patients with success. He had noted the success attending the efforts of a layman in dealing with inebriates not influenced by medical aid, and made an inquiry as follows: "It is nearly two years now that you have devoted yourself in such a disinterested way to my alcoholics, and that many get well is something I never saw before. Please explain to me how it is done. I am paid by the State to cure these people, and I cannot do it. You are the one who cures the drinkers, not I. Why can I not do it?" He was answered briefly with a smile: "It is very simple, Director. I am an abstainer and you are not. That is the secret. You cannot teach others convincingly that which you do not do yourself." "You are more than right," I answered, and I put an end to my wine drinking."

The right of individual choice in this matter is unquestioned, but the treatment of alcoholics cannot be carried out with success by those who are not qualified by habits of abstinence to teach abstinence. No one can forcefully prohibit in others a custom which he personally follows.

The reformation of habits requires, as a necessary preliminary step, that the patient should be awakened from indifference to the results of alcoholism and that his pride and ambition should be aroused to reinforce efforts of self-control. Some goal aim for the patient's life and effort can always be brought into prominence. With one it may be the welfare of family, with another it may be merely personal success that furnishes a motive for abstinence; but an appeal should be made to the best that there is in the individual to make the most of his capacity and opportunity. The initial steps toward this redevelopment of a patient's self-respect and determination are usually easily taken, but the difficulty comes in keeping him on the course.

The alcoholic can rarely do this unaided. An effort should be made not only to maintain the reform of habits, but to bring about a complete change in environment and associations when these have contributed to the habit formation. Much depends upon the influences of the home and social relations. If these are unfavorable there is little

hope of freedom from relapses. Unfortunately for many patients, but little can be done for them following a resumption of drinking until legal restraint can be imposed. Each alcoholic debauch leaves the patient more hopelessly a victim of the habit, and repeated attempts at correction are usually failures. Branthwaite estimates that 97 to 98 per cent. of the persons in England who become habitual drunkards, eventually become more or less permanent inmates of workhouses, prisons, or insane hospitals. It is probable that most of these persons belong to the defective class and that many were incapable of sufficient moral and mental development to lead sober lives. Every community has to carry the burden of supporting these persons, which is measured not alone by the financial cost, and it has become an important question of how this problem can best be met, and one which requires medical aid for its solution. Care which is based upon the knowledge that excessive drinking in early life if uncorrected leads surely to inebriety, and that such indulgence is evidence of a morbid personality, may result in early restraint and education that will reduce the aggregate of habitual drunkards.

To promote prevention rather than late custodial care should be the aim of public efforts, and legislation should be framed upon the recognition of the serious consequences, particularly in the young, and should not consider the payment of fines by the well-to-do, and the serving of short sentences by the needy, adequate measures to prevent further trouble. Repeated intoxication should be regarded as a very serious matter, especially in the young, and ought to be ground for detention in institutions where special care and effort are made to correct the habits. Proper classification would follow case study and releases should be granted on the parole system. Farm colonies for the confirmed inebriate, where they could be sent for indefinite periods, with liberty granted by the parole system, would furnish the most charitable and economical means of maintaining these persons who are totally incapable of caring for themselves. Short, definite periods of detention will never meet the needs of this class, products of their own deficiencies, the influence of their environment and alcohol.

ACUTE ALCOHOLISM

After the consumption of large amounts of alcohol the effects upon the nervous system are finally shown in a state of narcosis so complete as to resemble the coma occurring in diabetes, nephritis, insolation, apoplexy, and following cerebral trauma. The diagnosis of alcoholism should be made by careful exclusion of other conditions that may produce coma, corroborated by history of alcoholic excesses. Usually the patient recovers after a lapse of hours in drunken sleep without any serious effect from the debauch. There are, however, so many deaths reported from acute alcoholism that caution should always

be exercised in the handling of any given case. When serious symptoms are presented by a case they are usually the result of some foolhardy, drunken exploit where the victim has in a short time taken large quantities of distilled liquor. The symptoms may be influenced by contamination of liquor with methyl alcohol or the higher alcohol commonly called fusel oil, and found in considerable amounts in fresh rye and corn whisky, but largely disappearing in the "aging" process to which most whisky is supposed to be submitted.

The common symptoms of alcoholic coma are as follows: the color of the face may be pallid or flushed, the eyes are injected and staring in appearance, the pupils being dilated and reacting sluggishly to light; respiration is usually slowed and stertorous in character; the pulse, first full and bounding, becomes faint and slow. Feces and urine may be passed involuntarily. The alcoholic odor may be present, but does not alone make a diagnosis. It may be possible to arouse the patient partially, but this is not a differential symptom of much significance. The temperature is subnormal, and may be very low, especially if the patient has been exposed to the cold. A case has been reported with rectal temperature of 75° F., and numerous cases have been reported with temperature 12° to 15° F. below normal. Death, when it occurs, appears to be due to respiratory failure. In the greater number of fatal cases reported among adults, death has followed the use of one to two pints of distilled liquor consumed in a short period, with fatal results in from six to ten hours after onset of the coma, and recovery being rare if consciousness is not restored before the expiration of ten to twelve hours.

Treatment.—Treatment of this condition should be commenced by washing out the stomach with warm water if vomiting has not been profuse. When the collapse is complete, friction and heat should be applied to the body and limbs in an effort to stimulate the circulation and to maintain the body temperature. Stimulants like strong coffee and aromatic spirit of ammonia can be administered by the mouth if swallowing is possible, or caffeine, strychnine, or digitalis may be given hypodermically in full doses. Most cases of alcoholic coma will rally in time without medical aid, but serious results may follow this condition, especially when combined with cold and exposure.

METHYL ALCOHOL POISONING

Methyl alcohol (CH_3OH), commonly used in the arts, produces toxic effects that are frequently seen following its accidental ingestion or after intentional substitution for other alcoholic beverages. Commonly called wood alcohol it is also sold as columbian, union, and colonial spirit, and is freely used in the preparation of cheap liquors, essences, spirits, Jamaica ginger, a favorite beverage in prohibition and country districts, and its effects are undoubtedly more frequent than ordinarily recognized.

Cases of poisoning from exposure to its vapors have been reported by Gifford, Hale, and de Schweinitz. Fellater reports a case of poisoning by absorption through the skin, and says that all workmen exposed to its fumes should be protected by an abundant supply of fresh air. Susceptibility to its effects varies greatly. Permanent blindness has resulted from ingestion of two drams, and death from half an ounce. Moulton, however, cites a case that recovered with some visual defect after drinking one-half pint of wood alcohol. Toxic effects are seen alike following one generous administration or from repeated small doses. The severe symptoms may be delayed for hours or days following the ingestion of a large amount, and it is altogether probable that the repeated use of very small amounts may have a permanent destructive effect upon vision. It is generally believed that the toxicity of methyl alcohol is partly due to the fact that it is not wholly oxidized in the body, but is transformed into formates of high toxicity. Wood and Buller published 275 cases of methyl alcohol poisoning, of which 122 resulted fatally and 153 terminated in blindness. Less serious consequences must be proportionately frequent, and the importance of the subject should be appreciated by the medical profession and explained to the public. Education of workers to the danger of using cheap alcohol, whether or not it is sold under the name of "wood alcohol," and information as to the consequences of drinking Jamaica ginger, essences and tinctures, so often resorted to by a certain class of inebriates in lieu of other intoxicants should be given by the family physician when occasion arises. Prophylaxis is the best treatment for any form of poisoning that is so frequently followed by death or blindness. Rigid enforcement of legal measures requiring that all preparations containing wood alcohol should be properly labelled and providing penalties that punish adequately for non-compliance would aid greatly in an educational campaign concerning the danger to life and health resulting from its use.

Symptoms.—The symptoms of acute poisoning are classified by Wood and Buller in three groups showing varying degrees of severity; first, there is an ordinary mild intoxication with dizziness, nausea, and gastro-intestinal disturbance followed by rapid improvement and possibly later visual defect. The second group shows greater dizziness, nausea, vomiting, gastro-intestinal disturbance, cardiac weakness, and impairment of vision often developing into permanent blindness. The symptoms of the third group are overpowering prostration, coma, and death. Draper reports a fatal case with the following symptoms: intoxication, spasmodic abdominal pains, spreading over the renal region, ashy cyanosis, cold limbs, widely dilated pupils, restlessness followed by exhaustion, cardiac depression, syncope, and death fourteen hours after taking by mistake an unknown amount of Columbian spirit. When recovery takes place it is generally fol lowed by the development of visual defect, which is usually bilateral, and varies greatly in degree at different times before optic atrophy with loss of vision results. In a large percentage of cases this is a

frequent termination. The early symptoms are marked by narrowing of the visual fields and frequently by central scotoma. The ophthalmoscope shows congestion of the disks at first, followed later by optic atrophy. There is a divergence of opinion as to whether the primary lesion is in the optic nerve or in the ganglion cells of the retina.

Treatment.—The treatment of the acute symptoms of methyl alcohol poisoning consists in washing out the stomach thoroughly whether or not vomiting has been a symptom. There is no antidote and further treatment must be guided by the symptoms shown. Vigorous hypodermic stimulation with digitalis, caffeine, or strychnine for cardiac weakness may be supplemented by hot applications, high enemas of hot saline solutions, to which oil may be added if the bowels have not been freely opened. Diuretics to accelerate the elimination not only of the original poison, but of the sodium formate, which may be formed by partial oxidation, should be employed. Treatment of the resulting visual disturbance is not often followed by the desired result. Pilocarpin and potassium iodide and sweating during the early neuritis; followed later by full doses of strychnine hypodermically are the measures generally recommended in the hope of limiting the resulting optic atrophy. The individual idiosyncrasy of a patient to the influence of the poison determines the result more than treatment.

ALCOHOLIC MENTAL DISTURBANCES

The treatment of alcoholism brings the medical adviser in touch with all the mental disturbances that may be produced by alcohol, from simple intoxication to permanently demented mental states which are often the end results of long-continued alcoholic indulgence. The effects of alcoholism upon mental and nervous functions are very largely modified by individual reaction or the immunity of the patient, so in considering etiology, as related to the amount of alcohol consumed, length of habit, and symptoms exhibited, there is every possible variation and difference. The mental symptoms resulting from inebriety may be irregular and atypical because complicated by another psychical defect, thus furnishing such a complexity of symptoms that an accurate diagnosis may be most difficult without long observation and careful study of history and symptoms.

Despite the irregularities mentioned and the many modifications that will be seen in the study of a large group of cases of alcoholic insanity there are certain types of mental disturbance arising upon the basis of chronic alcoholism that are characterized by similarity of symptoms, course, and termination. Between these different groups transition types may be seen that have many of the characteristics of two groups, and in a given case classification is rendered difficult and may appear somewhat arbitrary. Considering these intergrading cases it might appear that alcoholic insanity constituted a single clinical group, with the differences in symptoms dependent upon degree and duration. But, on the other hand, fortunately most cases can be

differentiated by their course and symptoms and assigned to groups that are so similar in their symptomatology as to warrant, for the purpose of clarity in description, separate grouping under the general term of alcoholic insanity. The clinical differentiation of these various types is necessary for proper advice and treatment.

The irrational and dangerous tendencies shown by the alcoholic, insane patients may be so serious in their consequences, if unchecked, that the first step in treatment should be the study of mental symptoms, the recognition of their significance and the taking of proper measures to safeguard the interests of patient and public. Many tragedies might have been prevented if families and physicians had correctly interpreted the sinister significance of early symptoms in alcoholic mental trouble and had adopted custodial rather than medicinal treatment. The writer has personal knowledge of many cases that showed the dangerous prodromal symptoms for long periods before the commission of homicides and less serious criminal acts. In separating these types under the headings chosen an effort has been made to describe conditions that are constantly being encountered in hospital practice wherever saloons are maintained openly or the illicit dive flourishes under the friendly protection of constitutional prohibition.

No form of mental alienation is more potentially dangerous to patient and public than is that due to alcoholism. The harm that may result from improper treatment is ordinarily preventable if only the general public and medical profession were as keen to recognize the early symptoms of alcoholic mental troubles as they are to see the importance of many physical symptoms whose significance, though comparatively trivial, is better explained and understood. The figures concerning alcoholic insanity, as taken from reliable sources in this country and Europe, stand out in striking significance, and furnish abundant reason for most serious consideration of the causes of this form of mental disease and its appropriate treatment. From an averaging of statistics it is apparent that one-fifth of the insanity among men is due to the use of alcohol, and is shown in various types of alcoholic insanity. These figures do not include the many other cases in which alcohol is mentioned as a contributory cause of other psychoses. In estimating the significance of these figures one must take into consideration the importance of the personal equation in relation to the effects of alcohol upon mental integrity. While some persons become mentally deranged after a comparatively short duration of the alcohol habit, it must be remembered that it would be impossible to produce insanity in others by any amount of alcoholic excess. It is the person with a psychopathic tendency or with limited mental resistance to the toxic effects of alcohol who becomes insane. But it is a reasonable supposition that the majority of these patients would have remained in the ranks of bread-winners with more or less constancy if they had been abstainers. Unfortunately late treatment is unsatisfactory and inadequate to restore the patient to the degree of efficiency and self-control that was possessed before the psychosis resulted.

Prophylactic abstinence from youth to the grave is the only treatment that can be expected to reduce the incidence of alcoholic insanity. When this step can no longer be urged the next best measure must be adopted, and that consists in checking alcoholic indulgence when possible and recognizing the importance of mental symptoms hereafter briefly described and adopting treatment, symptomatic and custodial, as indicated by a careful study of the individual case, avoiding the common error of classifying all alcoholic mental cases as delirium tremens or annoying drunkards who do not need medical care and supervision.

DELIRIUM TREMENS

Delirium tremens is an acute manifestation of chronic alcoholism. The essential mental symptoms of this condition are disturbance of consciousness, disorientation, partial or complete, and fantastic visual and auditory hallucinations, the former usually predominating and modifying a delirious motor activity, which may be of the occupation type or may be characterized by fear reaction when the hallucinations are terrifying. The ordinary physical symptoms of uncomplicated delirium tremens are a coarse, general tremor, tremulous or thick and inarticulate speech, vasomotor and digestive disturbances, with slightly elevated temperature, usually a full, bounding pulse, and tendon reflex activity generally increased.

The percentage of cases modified by more or less serious complications is very large. Bonhöffer found in a series of 250 cases of delirium tremens, 70 per cent. either followed some acute illness or occurred during its course. Any condition that is so frequently attended by complicating features has a varied etiology, course, treatment, and outcome which must be recognized and considered in the treatment of individual cases.

Etiology.—More or less habitual use of alcohol for a variable period of years is demonstrable when reliable histories can be obtained. The condition is not commonly seen in the youthful, the majority of cases occurring in early middle life after the patients have suffered from the organic changes of chronic alcoholism, which is an essential factor for the production of delirium tremens. It seemingly makes little difference whether the alcohol be taken in the form of light beers or in beverages of higher alcoholic content. Either method of alcohol ingestion is followed by delirium tremens. The beer drinkers of Germany show the same alcoholic mental disturbances as the users of spirituous liquors in this country. It makes little difference in the amount of alcohol taken whether one drinks a pint of beer or an ounce of whisky. It is the alcohol, not the vehicle, which causes the mental disturbance.

Next in importance to the use of alcohol is the individual make-up and the capacity of the nervous system to resist toxic or destructive influences. That this capacity varies with individuals is plainly evident

from any study of cases. Some patients will go through life using large amounts of alcohol habitually without showing any pronounced mental symptoms and others exhibit mental disturbances after relatively short periods of indulgence in small amounts. This resistance to alcohol, or predisposition to mental breakdown, varies within wide limits in people considered normal.

Acute infections play a very important role in producing attacks of delirium, and of these pneumonia is the most common. Lambert states that in 1066 cases treated in Bellevue Hospital, pneumonia was present in the ratio of one to five cases, a somewhat higher proportion than mentioned by other observers, although the relation is common in the experience of all.

Traumatism and surgical interference are often followed by attacks. In the former case the injury is often the result of excessive use of alcohol and cannot be prevented. Operations on heavy drinkers should be limited to imperative surgery unless the patient is first prepared by a prolonged period of abstinence.

Epilepsy has been mentioned frequently as a factor in producing delirium. It is quite possible that an intemperate epileptic would be specially liable to this disorder, but there is little relation between epilepsy and alcoholic delirium if we except the cases having one or more convulsions during a period of excessive indulgence. In the writer's experience such convulsions have occurred in about 10 per cent. of cases. In no case has there been a history obtained which would warrant the actual diagnosis of epilepsy, as the attacks occurred only at a time when the patients were drinking excessively and ceased when they were placed under hospital treatment. It would appear that convulsions may in certain persons be the result of chronic alcoholism and that they usually disappear with the cessation of the habit.

Observers differ concerning the relation of the sudden withdrawal of alcohol to subsequent attacks of delirium, some maintaining that such a course is often responsible for a delirious attack, and others asserting with equal assurance that alcohol may be suddenly and completely withdrawn without serious consequences. Reliable histories from many patients certainly show that the first hallucinatory episodes date from a time when the patients were standing at a bar or drinking with associates. On the other hand many patients will give a history to a point where the digestion is impaired and prodromal symptoms are evident, then for some reason, possibly sickness, arrest, or financial difficulty, the alcohol supply ceases and delirium soon develops. It seems probable that such cases would have developed delirium even had alcohol been administered under medical supervision. Proof is lacking that the abrupt withdrawal of alcohol, in patients receiving reasonable care, is responsible for the occurrence of delirium tremens. Attacks of delirium appear to be due less to the immediate use or withdrawal of alcohol than to the autotoxic condition produced by long drinking, digestive and nutritional disorders, renal disease, infections, and injuries. In view of the difference of opinion concerning the

sudden withdrawal of alcohol as a cause of delirium tremens it is pertinent to present some figures bearing upon this point. English prison statistics for the year 1907 show that 63,000 inebriates were suddenly deprived of alcohol by confinement, and of this number there were only 246 cases of delirium tremens resulting. In only three instances was the condition mentioned in the death certificate. How many of these 246 cases, aggregating about one-third of one per cent. of the total, might have been prevented if alcohol had been gradually withdrawn can never be determined, but it is the writer's opinion that there would have been no appreciable increase or decrease in the infinitesimal percentage recorded, and that the administration of alcohol either to prevent delirium tremens, or as a subsequent therapeutic measure in the treatment of that condition, is both unnecessary and illogical, and, further, tends to perpetuate a false belief in the therapeutic value of alcohol. Chloral, cocaine, the bromides, and opium derivatives may also be responsible for delirous episodes presenting symptoms similar to those following the alcohol habit.

Symptoms. — The attack is preceded by prodromal symptoms, usually disordered digestion, tremor, broken, fitful sleep, with disturbing dreams, visual illusions, and mental distress, which may persist for many days before the active delirium ensues. Many patients will often give a history of experiencing these symptoms before actually becoming delirious. The slow, gradual onset is usually seen in cases uncomplicated at the start. When the delirium follows an acute infection, injury, or surgical operation it develops more suddenly and usually after an illness of only a few days. Patients often appreciate the significance of the prodromal symptoms, and either apply for aid or seek to avert the attack by stopping the use of liquor, but rarely with success. Usually when the patient comes under medical care he is more or less wasted and exhausted from lack of food and sleep.

The following brief abstract is given to illustrate the symptomatology and treatment in a typical case of moderate severity:

Patient was a man, twenty-nine years of age, who for eleven years had used ale and distilled liquors excessively. Following several days of unusual indulgence he was nauseated and unable to take food, tremulous and restless. Visual illusions and hallucinations developed suddenly, and some auditory hallucinations were experienced. Orientation for time, place, and persons was lost. His attention could be gained momentarily, and occasionally a relevant answer could be obtained. He talked constantly in a broken, tremulous manner, reacting to the phantasmagorial visual hallucinations. Animal processions, people of all descriptions, birds, snakes, etc., appeared to surround him. Contrary to the rule he showed but little fear. For four days there was almost constant motor activity, with only a few hours of broken, fitful sleep during that period.

The tongue was heavily coated; the bowels were constipated; the temperature ranged from normal to 101° F.; the face was flushed and bathed with perspiration much of the time; there was a marked muscular

tremor, and Quinquaud's sign was present. Tendon reflexes were exaggerated. He took nourishment freely, but no solids while hallucinated. Prolonged warm baths were given for several hours daily. On the fifth day he slept fifteen hours without hypnotics, and upon waking consciousness was clear and hallucinations had disappeared. Rest in bed for a few days followed by hydrotherapy and outdoor exercise completed the treatment. A month later he had gained fifteen pounds and was free from any apparent effect of his illness.

Treatment.—In uncomplicated delirium tremens there are four important indications for treatment.

1. The patient's strength and vitality must be sustained by an adequate amount of food, easily administered and assimilated, and ordered with reference to the degree of digestive disturbance that may be present.

2. The motor excitement and mental unrest must be quieted. The prolongation of the period of active disturbance is a serious drain upon weakened vitality, and is also a great burden upon those caring for the patient. Serious accidents may follow the impulsive and irrational activity of the frenzied and hallucinated patient.

3. Allaying the insomnia with the least possible delay is a most important therapeutic measure in this condition.

4. Elimination through the bowels and skin should be secured at the outset of treatment by purgation and hydrotherapeutic measures.

The methods of treatment necessarily vary greatly according to the symptoms which in any series of cases will show a wide divergence both in duration and severity. There may be in one case only a few hours of mild hallucinated delirium, which might be termed an abortive attack, or as an extreme contrast, after the first hallucinated outbreak, a condition of semicoma or muttering delirium may develop, lasting for weeks before terminating in recovery or death.

The proper feeding of a patient in this condition is desirable from the first, and can easily be accomplished by a tactful nurse without tube feeding, which should be adopted only as a last resort. A liquid diet is most easily taken and assimilated, and should be given freely. Usually the patient can be induced with little difficulty to drink milk, broths, and egg-nog. If such diet is not well retained predigested foods may be required. The varying degrees of inanition and exhaustion are best treated by feeding to the extent of the patient's capacity to assimilate food. Alcohol is contraindicated and should never be given in uncomplicated cases. It is illogical to assume that further use of alcohol will mitigate the symptoms of a delirium due to chronic alcoholism, and it is certain that enough cases have been treated without its use to demonstrate that it is unnecessary if not harmful. Others differ with this view and the question is one that must be left to individual judgment.

In weak asthenic patients, strong tea or coffee, strychnine, and hot saline enteroclysis may be usefully employed. If the myocardium is weak digitalis is useful, but probably not otherwise. When used it should

be given hypodermically to secure definite results. Capable nursing and hydrotherapeutic measures are the best means of controlling the motor activity. No form of delirious activity is so favorably influenced by the constant, tactful attendance of a nurse as is that of delirium tremens, and when possible such attention should be given as one of the primary therapeutic requirements. A full warm bath at a temperature of 90° F. is an excellent prodecure when a nurse can be constantly in attendance. It should be prolonged for hours in cases that react favorably. The head should be covered with a cold compress. Rise of temperature and signs of myocardial weakening should be considered contraindications for prolongation of bath. Usually the bath brings comfort to the patient and the delirious activity is quieted easily with the attention that a nurse can give. Frequently fitful sleep will follow while the patient is in the bath.

The cold pack may be used as an alternative, and, when the nursing force is inadequate, has some advantages over the bath. The patient is wrapped in a sheet wrung out of water at a temperature of 70° F., and is then swathed closely in blankets. If the air is excluded from the skin the procedure induces warmth, comfort, and rest. The head should be cooled by compresses, and the blankets should not be so heavy as to produce overheating. The pack should be changed every two hours, and if the temperature is rising it should be discontinued for a time. Isolation in a room or the painful methods of mechanical restraint often employed are wholly unsatisfactory and inadequate means of treating this condition. The full bath and pack often induce sleep without the use of drugs, and if the unrest is not too severe it is well to wait for a time to ascertain if drug therapy will be needed. On the other hand moderate doses of some hypnotic may be advisable at the beginning.

No drug has the credit of being a specific. Paraldehyde, chloral, morphine, hydrobromate of hyoscine, trional, sulphonal, veronal, and the bromides are the agents most generally recommended as hypnotics. Paraldehyde in dram doses repeated for two or three doses is reliable, but very disagreeable to take. Veronal in repeated doses of 5 to 10 grains is usually followed by sleep after a few administrations. Trional or sulphonal are usually given in somewhat larger dosage. All of these are liable to be followed by disagreeable after effects if used too freely. Hyoscine and morphine have the advantage of hypodermic use and may be combined, but should thus be given in small doses, as serious results have been reported from their joint administration. Small doses of apomorphine may have a quieting effect, but should not be given in a quantity sufficient to produce emesis. The aim of drug therapy should be to use the smallest amount that will produce rest and sleep, but no one drug can be recommended above others for routine use. Whether or not drugs are used freely there is usually a long, deep slumber following the period of delirious activity, from which the patient arouses free from hallucinations, conscious and

oriented. Minor relapses may occur, but convalescence ordinarily begins with this sleep and proceeds without interruption to recovery.

Free catharsis at the onset of symptoms is important and can usually be secured by the use of compound licorice powder, calomel followed by salines, compound cathartic pills or castor oil. The bowels should be kept freely open throughout the period of active disturbance and convalescence. In many cases there is an albuminuria which gradually disappears. The bladder should be watched for distention, and the urine carefully examined for evidence of more serious renal derangement, which is a frequent complication. Diaphoresis when desired is best secured by means of the hot air bath, or the warm pack, if carefully used, may give satisfactory results.

A form of disease, often fatal, is characterized by the gradual subsidence of the hallucinatory delirium and the onset of a semicomatose condition, with low muttering delirium. There is great prostration. The pulse is feeble and rapid, and the symptoms of meningeal irritation follow. Dana has described this condition as "wet brain," or alcoholic meningitis, and finds the brain pale, sometimes showing small punctate hemorrhages, the arachnoid, the subarachnoid space, and ventricles distended with serous fluid. The brain tissue shows edema, and the nerve cells varying types of degeneration. He says: "The disease is undoubtedly, primarily, at least, a toxemia not due directly to the influence of alcohol, but to the poisons which have developed in the body as a result of the condition of inanition and the paralysis of the digestive function caused by the prolonged ingestion of alcohol and abstinence from food." This condition has been reported by Lambert as being present in 15 per cent. of over 700 cases at Bellevue Hospital, with a mortality of 65.7 per cent. in the cases thus affected. While the symptoms have been frequently recognized in the writer's prison and insane hospital experience it has not been so common as cited by Lambert, and might not be expected in view of the difference in the character of the patients in different services. Probably the occurrence of these symptoms will be much influenced by the treatment from the onset of the delirium, and careful attention to purgation, feeding, and stimulation of the circulation are especially indicated in the early delirium. Lambert recommends the hypodermic use of ergot to equalize the vasomotor function and to prevent the tendency to "wet brain." Little more can be done for the condition when it supervenes. Cardiac stimulation by means of strychnine, ergot, digitalis, and caffeine, with ice-cap to the head, may relieve symptoms. Lumbar puncture may be useful to diagnosticate a serous from a purulent meningitis, but does not give permanent relief from symptoms. Deepening of the coma, rise of temperature, and spinal rigidity indicate a fatal termination.

During the period of convalescence stomachics and bitter tonics may be given to stimulate the appetite. Alcohol in any form or amount should be forbidden, and the patient should be instructed in the first lessons of total abstinence. This is the time of repentance, regret, and good resolutions for the future. The confidence which patients

show at these times in their ability to control their habits is as proverbial as their failure to keep these resolutions. Repeated attacks at longer or shorter intervals are common in the experience of all observers, and at each recovery this peculiarly hopeful, alcoholic optimism is generally exhibited, past failures being treated inconsequentially. The period of enforced abstinence is generally all too short. Unless the patient is committed as insane he is generally returned to his previous surroundings in about ten days or a fortnight, at which time he is not even in a favorable physical condition to make a successful fight against his habit. The delirium arises upon a basis of chronic alcoholism, and none would advise the release of chronic alcoholics for any other manifestation in so short a time. If the best results are to be obtained the convalescence should be prolonged for not less than three months, during which time the patient should have proper food, regular hours of sleep, exercise, or work in the open air, graded to suit conditions, and hydrotherapeutic treatment. The moral treatment during this period should be aimed to secure one result, total abstinence for the rest of life. Temperate or moderate use of alcohol for the victims of chronic alcoholism practically insures a recurrence of trouble, which grows more severe with the following attack. For the alcoholic patient suffering from mental disturbance there is no such thing as temperate use of alcohol. He either resumes drinking habits or he does not. In the former event he surely invites recurrences of increasing severity; in the latter he has a good opportunity to live out his expectation without further mental trouble.

ACUTE ALCOHOLIC HALLUCINOSIS

Alcoholic hallucinosis, while it resembles delirium tremens in some cases, is so essentially different in symptomatology and course that it should be carefully differentiated from the latter condition, because the indications for care and treatment differ so greatly. In a large series of alcoholic patients there will always be a few transition cases in which the symptoms of the two groups will be more or less interwoven, but the types are distinctly different, as will be shown by comparing the following abstract of a typical case of severe alcoholic hallucinosis with that of the case of delirium tremens:

A. B., male, aged forty years; fisherman. Committed to Hospital, May 7. Family history unimportant. Personal history: Naturally strong and healthy. No serious illness or accidents. Accustomed to outdoor work from childhood. Began the use of liquor at the age of sixteen, using whisky and beer freely when on shore, often drinking a quart of whisky in twenty-four hours. Never had any previous mental disturbance. Just before admission he had been on a protracted spree, which was cut short by starting on a fishing trip. His companions noticed that he was apprehensive and despondent. He soon attempted to drown himself, and when rescued attempted to beat out his brains by dashing headlong against the wall.

On admission to the hospital his physical condition, aside from slight tremor, was negative. He was perfectly oriented. His attention could be held, and, excepting a dejected manner, he presented a normal appearance. He seldom took the initiative in conversation, but would answer questions responsively and relevantly. There was no appreciable defect of memory. Pressure upon eyeballs produced no experimental hallucinations, but when his ears were stopped he heard a voice saying: "You —— devil, you are not so cute as you thought you was." The auditory hallucinosis began suddenly while he was on the water. He was sleepless and distressed, and, listening to the waves lapping against the boat, voices seemed to accompany this sound. He thought he could recognize his wife's voice and those of his children upbraiding him for his habits. They told him that they had drowned themselves on his account. They ordered him to go first to one place then another, and finally threatened death to all on board if he did not jump overboard. Then he heard the Devil's voice bidding him to destroy himself, and he reacted by two suicidal attempts. For six weeks these voices abused and tormented him. On the fourth week patient wrote this statement: "This morning the voices are telling me that I don't need to say my prayers, and it is no good anyway, for I can't say them right, and I have got no more time on this earth. This is something that the doctors don't understand and nobody else on earth knows anything about it only myself; but they say I have got to do away with myself because I am not fit to live." Slowly the content of the hallucinosis became less disagreeable, and gradually the voices ceased. There were no visual hallucinations at any stage. At first he smelled sulphur when he heard the Devil's voice, and had a few tactile sensations, which he attributed to the same influence. There was an explanatory delusion formation which disappeared with the hallucinosis and was followed by recovery with perfect insight into the character of his disturbance in seven weeks from the first symptoms. The subsequent history showed a period of abstinence accompanied by good health lasting over a year, when drinking habits were resumed. Following a spree lasting several days he again put to sea on a trip. His companions noted that he was sleepless and worried prior to a dash from the cabin in the middle of the night and a leap overboard. This time his suicidal attempt was successful.

The proper care and treatment of patients showing these symptoms is highly important both from the medical and medicolegal standpoint. The patients are usually first seen by the general practitioner and a recognition of the condition must precede any rational care of the patient.

Etiology.—The etiology of alcoholic hallucinosis is much like that of delirium tremens. It arises on a basis of chronic alcoholism usually of somewhat longer duration than that preceding first attacks of delirium. It is much less frequently associated with serious complications and is therefore less dangerous to life, although a much graver mental disturbance. The condition frequently follows a previous attack of delirium or it may occur primarily. The physical condition shows

far less disturbance than is seen in delirium tremens. Temperature and pulse rate usually show little variation from the normal. The inanition, digestive disturbances, and tremor seen in delirium are present, if at all, only in a minor degree. Food may be refused during the period of hallucinosis and nutrition suffer in consequence.

Symptoms.—Auditory hallucinations predominate. At the height of the disturbance the voices are generally threatening, abusive, or commanding. As the condition improves less disagreeable and terrifying remarks are heard, and frequently patients say that the last hallucinations are rather comforting and reassuring in character. Visual hallucinations, if present at all, are fleeting in character, are not reacted to as in delirium tremens, and influence the patients much less than the voices. Olfactory and gustatory illusions or hallucinations are frequently seen at the outset, and when present are disagreeable in character. Gases, chloroform, etc., are smelled, and filthy or poisonous substances are detected by smell or taste in the patient's food or medicine. Tactile disturbance is commonly noted. The patients feel electrical currents, shocks from batteries, and maltreatment of various sorts. All these disturbances are usually ephemeral in character and engage the patient's attention much less than the auditory hallucinations. Consciousness and orientation may remain unimpaired, though there is frequently some temporary confusion at first. In the relatively few borderline cases resembling delirium tremens this disturbance of consciousness with disorientation for time, place, and persons may be pronounced.

In reaction to the hallucinosis an explanatory delusional system develops, which is usually distressing in effect because of the variable ideas, persecutory or frightful in character, which are formed by the patient to explain the peculiar sense disturbances. There is frequently a tendency to systematization of these delusional ideas, which in favorable cases disappear with the hallucinations. Delusion formation concerning the tactile, gustatory, and olfactory hallucinations has some prognostic significance, and, if at all persistent, points to a long duration. The patient's emotional moods vary greatly. Distress, sullenness, irritability, and apprehensiveness are generally evident in all cases. In many patients the fear and unrest are so compelling that suicidal attempts of desperate, impulsive character occur during the height of the disturbance, when the hallucinations are most terrifying and abusive. In 58 cases previously reported by the writer 27 per cent. made suicidal attempts, and threats of suicide were made by several others. A somewhat smaller number of patients exhibit homicidal tendencies of a particularly dangerous character because so sudden and unprovoked. In some instances the act is that of a frightened person impelled by motives of fancied self-defence and blindly unreasonable in the selection of victims who are as liable to be friends or caretakers as strangers. In other instances the attempt at violence may be more deliberate and aimed especially at some person or persons whom the patient's delusions have centred upon as being

responsible for his imaginary troubles and persecutory abuse. No form of mental alienation is more potentially dangerous to the individual and the community than alcoholic hallucinosis, and probably none is responsible for a larger number of suicides and homicides in communities where drinking is common.

The duration of alcoholic hallucinosis varies greatly, there being no such tendency to self-limitation as is seen in delirium tremens. The writer has seen cases in which the hallucinosis has lasted only a few hours, with no recurrence under hospital care, and others that lapsed into a subacute or chronic form, followed by a chronic delusional state, with mental deterioration. The great majority of cases, especially in first attacks, terminate in from a few days to a few months. Relapses without further use of alcohol are frequently seen in patients under confinement, and should always be considered in the treatment of this condition. For a time of varying length the patient may appear to be entirely free from hallucinations, to have corrected his ideas, and to have good insight. Suddenly his mood and manner change as the result of another period of hallucinosis, which is usually less severe than the first. This second outbreak happens sufficiently often to warrant giving the opinion that patients should be kept under observation for not less than three months after the cessation of hallucinations and correction of delusions.

Prognosis.—The prognosis in first attacks is good. Physical health suffers but little if the patient is protected from himself from the start. The greatest danger of self-injury occurs in the first few days. Recovery from the mental symptoms may be expected in most cases, with no appreciable deterioration resulting from the attack. The tendency to resume drinking habits is responsible for a very large percentage of relapses, and repeated attacks often terminate in a chronic condition, necessitating permanent confinement.

Treatment.—The treatment for such patients is indicated in the discussion of symptoms, and is primarily custody and careful attention to prevent acts of violence. Many distressing occurrences might have been prevented if the significance of the symptoms in this psychosis had been recognized and the patient sent to a hospital. Home treatment can rarely be followed with safety, and prolonged hospital detention is necessary.

The indications for treatment are much the same as in delirium tremens, though physical disorders need much less attention. During the period of active hallucinosis bed treatment is desirable and isolation should not be practised unless the patient is kept under constant observation to prevent possible self-injury. Also the common tendency to violent attacks upon others should be anticipated by adequate provision. Brisk catharsis is always indicated. The administration of proper diet may present more difficulty than in delirium tremens, for while there is more rarely any serious digestive disturbance, the patients frequently fancy that their food and drink are being poisoned, and forced feeding may be required for short periods.

Hypnotics may be used advantageously in moderation if the patient is sleepless and disturbed at night. Violent excitement is rarely prolonged and can be controlled by the hypodermic use of hyoscine or morphine in small doses and by the use of dry or wet packs, with proper nursing attendance. The warm full bath is not so useful in controlling the excitement and motor activity of this psychosis as it is in cases of delirium tremens. Following the period of hallucinatory excitement many patients can be helped to a correction of their delusional ideas by a careful and explicit explanation of their condition and the significance of their symptoms. It may be said that the patients would automatically recover their mental balance, and that is probably true; but in the writer's experience correction of delusions and mental restoration have so often suddenly followed such an interview that he believes rational psychotherapy is of great value at this stage of convalescence. Tonic treatment should be given during the probation period before discharge from custody. Where hydrotherapy is available, prolonged perspiration in the hot-air cabinet followed by a warm shower and cold douche, aid in elimination and help to establish a better vasomotor balance. With returning health, increasing work and exercise in the open air should be urged, grading the efforts to the patient's capacity. From the time when reason is restored until the patient leaves the hospital the relation of alcoholic indulgence to his psychosis should be presented clearly and convincingly, and the sure consequences of future indulgence should be contrasted with the probable results of total abstinence. Then if one is so fortunate as to be dealing with patients of average capacity and power of resistance, who are returning to favorable home conditions, there may be a small percentage of cases whose future course is so favorable as to justify the belief that such effort in all cases is not always wasted labor.

CHRONIC DELUSIONAL STATES

Clinically we find two common types of chronic delusional insanity in the confirmed alcoholics, differing noticeably in evolution and symptoms. In one group the history of previous attacks of alcoholic hallucinosis or delirium tremens will be obtained, frequently with several recurrences, from which the patients, in earlier life, may have made seeming recoveries. Either from a congenital tendency to mental "twists" or from long-continued habits of alcoholism, marked by frequent hallucinatory episodes and imperfect recovery from the acute disturbance, the judgment becomes permanently impaired and hospital detention is required either for long periods or permanently. The tendency to mental degeneration in this group of cases is undoubtedly strong and the differentiation from paranoid dementia præcox may present many diagnostic difficulties. In the alcoholic cases the history of long-continued drinking habits with several hallucinatory attacks of the characteristic alcoholic type will always

be obtained. The hallucinations, particularly the auditory and tactile phenomena, become chronic, although losing much of their early vivid reality. The judgment defect becomes more pronounced and somewhat indefinite persecutory ideas are formed which have their inception in explanations of the hallucinations. Emotional reaction to these ideas is commonly not very active after the condition becomes chronic. Memory, consciousness, orientation, and school knowledge may be well retained. In some cases the delusions and hallucinations gradually fade out after the lapse of many years, and the patients, to the casual observer, may present a very good appearance; but the resulting dementia is so marked in the sphere of volition and the emotions that they usually remain permanent burdens either upon the family or the State.

In another group of patients we find a gradual evolution of paranoid ideas arising usually in middle life after many years of alcoholic indulgence which has never caused any acute mental disturbance. Usually these patients have been daily drinkers and may or may not have been drunkards in the common acceptation of the term. Hallucinations are rarely observed in this variety of alcoholic insanity. Aside from the judgment defect shown in delusions of suspicion, persecution, and jealousy, and the loss of capacity due to the patient's inability to adjust his social and family relations, there may be little evidence of profound mental deterioration. The delusions of jealousy and marital infidelity (Kraepelin's Eifersuchtswahn) are the most commonly recognized symptoms of this type, which finds its best expression in persons with neuropathic taint who have used alcohol habitually for many years. The family difficulties and alienation that naturally follow the husband's long-continued drinking habits furnish more or less basis for the elaboration of ideas of marital infidelity and resulting jealousy, which in marked cases dominate the patient's whole mental life, and, because of their character, render them potentially dangerous to the objects of their unfounded suspicions. Usually an accurate history will show that these insane traits are an evolution of the natural peculiarities of a suspicious, jealous, antisocial temperament which attain rank development under alcoholism and the family discord it produces. Failing sexual power on the part of the patient may be another cause for the development of ideas of marital infidelity, or the wife's refusal to cohabit with a drunken husband be construed as evidence of guilt. Either sex may show this type of mental disturbance, and it probably occurs more frequently in women than men when the ratio of alcoholism between the sexes is considered.

The symptoms are very gradual in onset and the diagnosis of an insane condition may be very difficult and always requires a careful consideration of history, family relations, and symptoms displayed by the patient, in view of the clear and plausible presentation the patients usually make of their perverted ideas. As a rule it will be found that the productive capacity of patients has been gradually failing for some time. Often the use of liquor has been partially or

wholly discontinued for a long period, during which the suspicion, jealousy, and antisocial tendency has been growing more pronounced. The husband finds in his wife's attitude toward him positive evidence of her transferred affections, and in her most innocent daily acts sees undoubted proof of her guilty conduct. The simple act of opening or closing a window, placing a light or hanging up a dish towel may be considered a part of an elaborate signal system which she is supposed to use for communicating with her paramour. Neither age nor physical infirmity exempt her from these suspicions, and frequently she is believed to be actively conspiring to take the husband's life by poison or other means. Ordinary sickness or imaginary bad symptoms are attributed to some particular article of food prepared by the wife, with sinister intent. The process of reasoning by which the patients arrive at their conclusions is often silly, illogical, and entirely absurd, and their explanations are ordinarily tedious and involved. Their garrulous circumstantiality is often exhibited in written productions, for which these patients show extreme partiality. There is hardly any limit to the petty, disreputable meanness to which they will resort in daily relations with the objects of their delusions, in order to trap them into giving convincing proof of their guilt. Fortunately the reaction to these beliefs is much less pronounced than in the delusional state of acute hallucinosis, and while they may resort to violence and assaults, or on the other hand attempt suicide, as the best means of overcoming their difficulties, more frequnetly there is little or no tendency to violence of a dangerous character. Progressiveness and chronicity characterize the course of this disorder.

Treatment.—When the symptoms have developed to such an extent as to indicate surely that the patient is insane, little can be done to bring about recovery. There is a considerable element of danger in trying to care for such patients at home, even when nurse or companion is supplied. It is also difficult to completely prohibit alcohol under home conditions. Further daily contact with the object of the delusions tends to aggravate the symptoms and almost invariably the patients are more comfortable with strangers than with their family. For all of these reasons hospital or sanitarium confinement is always indicated for a prolonged, indefinite period. Custodial care is the most important part of the treatment, as it insures total prohibition of alcohol and guards from any dangerous tendencies. Under such environment physical strength and functions have their best possible opportunity of recuperating from the general effects of chronic alcoholism. Symptomatic treatment for physical ills should be supplemented by proper diet, hydrotherapy, and a systematic daily regimen, which provides for open-air exercise graded according to the patient's mental and physical condition. Beyond supplying the patients with diversion by means of normal occupation and recreation little can be done to correct the delusions. After long confinement a small percentage of cases may show sufficient improvement to warrant a trial at home. But few are able to enjoy this privilege with comfort either to them-

selves, or family and these few always show more or less well-marked evidence of mental deterioration.

Prophylaxis. — Prophylaxis in the pre-insane period should be encouraged to prevent the symptoms rather than to treat them after development. The question follows, How and when shall it be employed to prevent the development of the condition just described? While the medical adviser should always endeavor to secure total abstinence in the treatment of all disorders due to alcoholism, concentration of effort must be coupled with persistence if this clinical symptom-complex is to disappear from our future case records, and a different attitude toward the treatment of alcoholism must prevail. More efficient legal measures must also be adopted to insure adequate care of those showing the early effects of alcoholism. But the medical adviser should so thoroughly understand the evolution of these hopeless mental conditions as to be able to give competent advice before it is useless as a preventive precaution. How much can be accomplished in prevention is uncertain, how little has been attempted in a great majority of cases is all too evident to anyone familiar with the histories of alcoholic cases. Attacks of alcoholic hallucinosis should not be regarded lightly, and patients suffering from this disturbance should be kept under observation long enough to demonstrate that recovery is complete and that the patient is not harboring half-corrected ideas. The first recurrence of the alcohol habit should be the signal for renewed detention before any additional damage can result, rather than to allow its use until later and more severe outbreaks occur. More or less permanent confinement may be needed in some cases to prevent return to drinking habits. But would it not be better to keep a person confined with a larger percentage of his natural capacity intact than later to house a deluded, demented, and dangerous person? The recognition of the premonitory symptoms of this type of alcoholic insanity would be difficult, as there might be no disturbance that would call for medical consultation until the delusions were firmly fixed. When middle-aged men, however, who for years have been daily drinkers begin to lose their capacity for work and interest in its performance, and to display an unusually disagreeable and suspicious manner in their home relations, there is no question about the necessity of stopping the use of alcohol if the patient is to remain a useful member of the home. Further indulgence may not result in insanity, but if the person is of neuropathic make-up it is to be feared, and all possible effort should be made to induce total abstinence. A small percentage of patients may be reasoned with at this stage and reform in habits may be effected under persistent care and supervision; but in most instances the regulation of alcoholic habits after long periods of excessive indulgence is accomplished only by institution treatment, where, unfortunately, the detention is usually of too short duration and the tendency to relapse upon release almost irresistible.

To be effective, prophylaxis should be inaugurated early in life before damage is done, which is but another way of stating that if persons

are surely to escape the mental impairment that follows alcoholic indulgence, total abstinence is the only certain precaution. Whether or not alcohol will seriously affect the mind and body of a given individual who in early life begins its moderate use is but an experiment, which, in an unknown but not inconsiderable percentage of cases will result ruinously, being influenced undoubtedly by temperamental idiosyncrasies and limited resistance to alcohol. Unfortunately the damaging effects of these experiments are permanent, and the results are seen in hospitals, prisons, almshouses, premature graves, and in succeeding generations to a degree that cannot be accurately estimated.

KORSAKOW'S PSYCHOSIS

Mental symptoms associated with multiple neuritis were often recognized and mentioned by writers before Korsakow, in 1887, described a syndrome which has come to be commonly known by the writer's name. While the mental symptoms of this psychosis are often seen in other conditions than those due to alcoholism, in many of the cases of alcoholic polyneuritis the course and symptoms correspond with Korsakow's description. On the other hand mental symptoms differing materially from Korsakow's syndrome may be seen associated with an alcoholic polyneuritis. But these differences are largely of psychiatric rather than therapeutic interest and a discussion of them is not of much importance for the purpose of diagnosis and treatment of the underlying condition.

The term "cerebropathia psychica toxæmica," originally used by Korsakow, indicates something of the etiology and symptomatology seen in this symptom-complex, which has a toxemic etiology, and shows a more or less well-marked polyneuritis and a train of peculiar mental symptoms. These are an inability of the patient to retain impressions and to reproduce them after short periods, a profound memory weakness most marked for recent events, a loss of orientation, a falsification of memory, and a tendency to confabulation to which the patient resorts volubly and freely when his memory lapses. Hallucinations, largely visual or tactile, are generally present in cases of an alcoholic etiology.

Etiology.—Etiologically the disease is toxemic in character and has been reported to follow chronic poisoning by lead, arsenic, morphine, and toxic infection from tuberculosis, typhoid fever, enteritis, rheumatism, lues, and other infectious diseases. Nearly all observers give chronic alcoholism as the most common cause, and it should be considered as one of the morbid conditions arising in from 2 to 5 per cent. of cases of chronic alcoholism, with a tendency to more frequent occurrence in women than in men. While chronic alcoholism furnishes the basis for the development of this condition more commonly than any other cause it is quite probable that impaired metabolism, autointoxication, and infections may play a secondary part in the produc-

tion of symptoms, and that the brain and nervous system which have been injured by long indulgence in alcohol may react more easily to the secondary toxic agents, whose effects under more favorable conditions might not have been apparent.

Symptoms.—The symptoms may show considerable variation in their onset. The first outbreak may be a delirium resembling in all essentials an attack of delirium tremens, and this form of onset is seen in the majority of alcoholic cases. The delirious symptoms are prolonged, but gradually the hallucinosis and delirious activity abate and the characteristic mental picture appears. Symptoms of a slight or severe neuritis may precede or follow the delirium, and tactile hallucinations are apt to be frequent and are often related to small objects or insects which the patients believe are under the skin. One of the writer's patients was busily and rather cheerfully engaged for days in pulling imaginary tacks from his fingers and toes while another was occupied in digging small worms from under his finger nails and dropping them into an imaginary pan of hot water, where he enjoyed, in imagination, seeing them "sizzle."

Less frequently a slow gradual memory weakness may precede the disorientation and confabulation, or the patient may exhibit weakness, irritability, progressive memory impairment, and a stuporous condition. Memory defect and a tendency to confabulation are the characteristic mental symptoms which, added to the disorientation, hallucinosis, and polyneuritis make the diagnosis. When the active delirium has subsided the patients are usually accessible to conversational efforts and prattle at great length describing events and experiences that never happened. Simple questions about events of the last twenty-four hours will be answered by absurd and grotesque romancing, which in many cases will be extended to the time period covered by the examiner's presence at the bedside. In other cases there may be partial appreciation of time and events, the gaps being supplied by fanciful fabrications that are absurdly impossible. Usually orientation for time, place, and persons is markedly impaired or wholly lost, and little grasp on surroundings is exhibited. Strangely contradictory answers to orientation questions may be obtained in response to the same questions at short intervals. While their emotional mood shows great variability, patients are often euphorically good-humored while relating their fanciful tales.

The polyneuritis generally can be detected early in the disease, but may be so mild as to produce no symptoms beyond muscular weakness, tenderness of the nerve trunks to manual pressure, usually best detected in the lower limbs, and various paresthetic sensations, with diminished tendon reflexes. The other extreme is severe general neuritis, with great weakness, incoördination and paralysis of muscle groups, usually the extensors and lower extremities showing the greater defect. The cranial nerves, especially those supplying the external eye muscles, may be involved, and nystagmus may also be noted. The vagi may be involved, producing dyspnea and cardiac symp-

toms. Sensory disturbance is pronounced and varied in character from anesthesia to hyperesthesia. Position sense may be impaired. Pain may be excruciating. In severe cases the reflex are lost and atrophy may rapidly follow the initial symptoms.

The duration of acute symptoms varies from a few weeks to months. A fatal termination often occurs at the height of the trouble. In favorable cases the symptoms of neuritis disappear first, followed by gradual mental improvement, which may be extended over a period of months. It is probable that no patients recover without displaying some slight degree of measurable mental defect. Some retain throughout life weak atrophic muscles and a degree of mental defect which completely incapacitates them for any attempt at self-support. In these cases the residual memory defect, loss of will power, and interest in affairs are marked, and they fall easy victims to tuberculosis and similar troubles. The prognosis at the height of the disease is rendered grave by involvement of the vagi and cranial nerves and some degree of permanent mental defect may be expected even in most favorable cases.

Treatment.—Treatment of the condition is best administered in a general hospital or sanitarium. After the delirium ceases the patients rarely require insane hospital custody, as they are weak, tractable, and easily controlled. Commitment to an insane hospital should be avoided when possible. The initial delirium should be treated like that of delirium tremens, but it must be remembered that it is generally of longer duration, and special attention should be given to sustaining strength by a liberal and easily assimilated diet. Semisolids, with milk, eggs, and cod-liver oil, should be given freely, and at frequent intervals, if digestion will allow, and generous overfeeding is desirable until convalescence is well established. Alcohol in any form or amount is positively contraindicated in all stages of the disorder. Absolute rest should be secured for all cases, for the condition is one of general exhaustion, with general involvement of the nervous system that may be much more serious in its effect on the vital process than anticipated at the outset. In addition to absolute rest in a recumbent position, care should be exercised in securing comfortable positions for the affected limbs, and to prevent pressure of the bedding on the feet. When the patient's strength permits, diaphoresis by warm packs or hot-air baths is useful, both as a relief to the pain, which may be severe, and as an aid to elimination. This should be attempted during the acute stage only under competent supervision maintained to prevent injurious effects upon the heart. Warm local applications often have a soothing effect upon pain, which rarely requires drug administration. Drugs are of little value in the general treatment of the disease. Digitalis may be useful when the heart is weak. The suppression of alcohol, maintenance of strength and nutrition, aiding elimination by stimulation of skin and bowels and complete rest are measures sufficient to meet the indications for early treatment in most cases. When the neuritic disturbance is severe, and pain and paralysis

are pronounced symptoms, additional symptomatic measures must be adopted. Little can be done in this respect until the acute symptoms have subsided, when massage can be gently administered. It should never be given so forcibly as to produce pain in the affected limbs. Mild electrical stimulation of the muscles involved is also commonly recommended. The galvanic current should be used first and may be followed by faradism if paralytic residuals are slow to disappear. Foot-drop, which is the most common paralytic symptom in this form of neuritis, is rarely permanent.

Convalescence may be aided by hydrotherapy, generous diet, and graduated open-air exercises, but the extent of anatomical damage done to the nervous system by alcohol and the individual recuperative power of the patient are factors which very largely determine the amount of physical and mental damage that will remain. Care should be exercised to prevent physical or mental overexertion, especially at the beginning of improvement. Total abstinence with employment suited to the patient's reduced capacity should be secured when the disease results most favorably. Many others will require the custodial care of an institution for life, or if the family means permit, similar support and home supervision. In patients with marked residuals, scientific pedagogical methods offer some hope of partial restoration.

ALCOHOLIC DEMENTIA

Apart from the mental deterioration that may be considered as a permanent residual following some of the more acute manifestations of alcoholism there is occasionally seen a pronounced degree of dementia, developing slowly and insidiously, without any well-defined preceding alcoholic psychosis. Often carefully obtained histories, however, will show that following debauches there may have been brief periods of hallucinosis unaccompanied by any well-defined mental disturbance that necessitated treatment. The patients were able to recognize the character of the phenomena which caused only temporary mental unrest. Even this slight evidence of acute disturbance is wanting in many cases. It would appear that the neuropathic tendency is less marked in the cases forming this group, as the symptoms develop much later in life and only after many years of habitual daily use of alcohol, during which time the patients may have been moderately successful in work or business, but always showing a failing capacity and gradually increasing mental defect exhibited in a loss of ethical standards, lessened regard for personal appearance, memory impairment, irritability, failure of judgment, formation of delusional ideas not at all systematized, and often founded on misconception of actual facts. An increasing susceptibility to the influence of alcohol is generally noted until comparatively small amounts will suffice to keep the victims in a continuously besotted condition that requires custodial care. Such patients show the alcoholic facies, the tremor and uncertainty

peculiar to alcoholism. Usually there is a peculiar mixture of a grumbling, fault-finding tendency, blended with a characteristic alcoholic euphoria, which may be the last vestige of the former good-fellowship which in early life played an important part in the formation of habits responsible for the present condition. In some instances the tremor, speech disturbance, ataxic movements, sluggish or absent knee-jerks, with impairment of the pupillary light reflexes, may suggest general paralysis so strongly that differentiation is difficult especially if a delirious episode with hallucinations and marked judgment defect complicates the picture. By many observers this condition has been called an *alcoholic pseudoparesis*, from which its course and outcome differ essentially. The Wassermann test for serum and spinal fluid with the cytological study of the latter will ordinarily establish the diagnosis, but a late syphilis may make the differentiation difficult.

Institutional treatment is usually required, and should be continued for a long period even when improvement is noted. Complete and lasting abstinence from alcohol offers the only hope of a partial restoration of mental functions. The patients, if given the opportunity, relapse almost without exception. Regis reports the case of an alcoholic pseudoparetic who presented the symptoms of general paralysis with so-called recovery sixteen times in twelve years. In the writer's hospital experience there has been no improvement observed that would justify the term "recovery." Symptomatic treatment combined with the same regimen as advised in the convalescence of the more acute alcoholic psychoses is indicated. If there is sufficient improvement to warrant a trial at home the resumption of drinking habits should be the signal for return to the hospital.

PATHOLOGICAL DRUNKENNESS

Varying degrees of amnesia are observed in common states of physiological drunkenness. Some persons lose consciousness and memory with little motor impairment, and a short period of more or less automatic activity may follow before the effects of alcohol disappear, while others will preserve relatively clear consciousness and memory, though losing muscular control. Within certain limits such amnesic or automatic states should be regarded as an individual reaction to what may be called ordinary drunkenness. Occasionally there will be seen a case in which the symptoms are so prolonged and of such pronounced character that they must be regarded as being a peculiar pathological reaction to alcohol. The importance of recognizing the character of the mental disturbance in this group of alcoholic manifestations is great because of the medicolegal difficulties that are liable to arise as a result of criminal acts performed during a period when there is dissociation of consciousness and complete amnesia.

The recognition of such possibilities, and of the symptoms when they occur, is essential for the rational treatment by either physicians

or courts. The condition is usually seen in patients with psychopathic traits, hysteria, epilepsy, or following head injuries. In undoubted epileptics it is quite probable that the disturbance may be an epileptic equivalent and that alcohol plays a minor part in causing the symptoms. In other cases the tendency to periodicity in the drinking which immediately precedes the automatism has been considered by some as epileptiform in character. One patient of the writer's would be a total abstainer for months, when a desire to drink would be preceded by irritable depression. After a few drinks amnesia was complete for several days. During this time he would show no pronounced evidence of drunkenness to associates, but would be brutal and offensive in sharp contrast to his normal demeanor. He would wander from place to place, continuing to drink until his money was spent. On one occasion when consciousness was restored he found himself working as a deck hand on a coasting vessel, and on another being cared for by the authorities after a memory lapse of several days in both instances. There was complete amnesia for the events occurring during these periods. In some patients the symptoms will follow prolonged and excessive drinking, in others small amounts of liquor bring on the condition. Frequently disorderly conduct and acts of violence, thefts, or forgery may be committed while the patient is in this state. The previous record of patients, the overwhelming grief and amazement shown when consciousness is restored, and they are confronted by charges, help to differentiate this psychopathic tendency from the malingering efforts of a criminal. The writer has known several instances when one such episode has served to frighten the patients into becoming total abstainers. In each case the patients were apparently normal in their mental make-up, and were not drunkards in the common acceptation of the term. But prolonged convivial habits had served to bring out this latent psychopathic tendency, fortunately before will power was lost. Cases with marked psychic defect tend to frequent recurrence.

In some patients the dissociation in consciousness may not be complete, and recollection of the events following drinking may be fragmentary. Great mental distress, anxiety, and unrest may culminate in suicidal attempts without the occurence of compelling hallucinations which usually precede the suicidal attempts of drunkards. The writer has had several patients, who spent a considerable portion of their time in hospitals, as a result of this tendency. While in confinement they are cheerful, optimistic for the future, and profess to have lost all desire for drink, and to have been taught the necessary lesson by their last painful experience. New liberty will be used wisely for a time, but sooner or later the initial drink is taken, which results in the recurrence of an anxious, frenzied suicidal state.

Treatment.—Treatment of these conditions is simple, at the same time difficult; first, custody; then, total abstinence. Ordinarily the police render first aid, and if it is deemed necessary a busy police surgeon may examine the patient sufficiently to determine that he has another drunkard whose psychic state he has neither time nor

desire to investigate, and the police court administers treatment. During and following the outbreak institution custody offers the safest course, and should be sufficiently prolonged to overcome the effects of alcohol so far as the patient's condition will permit. When the character of the symptoms is recognized and considered in connection with the underlying psychopathic condition some estimate of future probabilities can be formed. If total abstinence can be secured there is little danger of recurrence. Such a result cannot be expected in cases with marked mental abnormalities, with a tendency to recurrence of the restless, anxious depressed mental states that seem to cause the alcoholic indulgence. With this latter group hospital detention may be the only course that will prevent recurrences, with results distressing to patient and friends. When liberty is granted, constant, vigilant care must be exercised to prevent further use of alcohol. Neurotic persons, who show an undue susceptibility to alcohol, should be told of the danger to their mental integrity that lies in the use of alcohol, and protected if possible against both their inclinations and the social customs everywhere prevalent.

CHAPTER VIII

THE TREATMENT OF THE NEUROSES, INCLUDING THE PSYCHONEUROSES

By ERNEST JONES, M.D.

INTRODUCTION

General Importance.—That the treatment of the psychoneuroses—or, to use a broader term, of the neuroses—is one of the most responsible tasks of the medical profession, becomes manifest from the following considerations:

1. **Significance of Neuroses.**—The suffering that may be caused by a neurosis has certain peculiarly distressing features, the significance of which is not always appreciated by the observer. Being most frequently of a directly mental order, it disturbs the very centre of the personality. With the most grievous forms of bodily suffering, even with the pains of cancer or the suffocation of thoracic disease, the patient at least preserves his mind relatively intact. In even the worst moments he has some sanctuary to withdraw into where it is possible to have recourse to consoling thoughts, memories, and reflections; the trouble can to some extent be met, and commonly is met, by the philosophy or religion that the experience of life has built up. With a neurosis, on the other hand, the sufferer is robbed of this last resource. The very organ that yields consolation, that philosophizes, is no longer whole, for it is the mind itself that is the seat of the pathogenic disturbance; his inmost being is impaired, and he dimly realizes that he is being torn by the conflicts that are at the root of his trouble. A common cry of such patients is that they might forget themselves, get away from themselves, and have at all events a few moments of mental peace; when insomnia sets in, as is so often the case, even the respite of sleep is denied to them, or sleep itself may be so broken by fearful dreams that it is dreaded as one of the worst of sufferings. The patient's mental anguish may be so intense, and his internal support so little to be relied upon, that he is seized with the conviction that all is lost, that he is rapidly becoming insane—a consummation looked forward to with the utmost terror. Added to these considerations is the circumstance that, in spite of the special need for it, there is hardly any malady that receives so little understanding or even common sympathy as does a neurosis. This applies not only to the question of relatives and friends, but sometimes to that of the medical practitioner as well. A neurotic illness is vaguely felt to have something essentially

unreal about it, to contain something of a pose, for instance a "craving for sympathy," and to be much more under the control of the patient's will than he can be got to admit. The old theological conception of disease, as being either a manifestation of sin or a punishment for sin—at all events something for which the individual is ultimately responsible—has shown itself far more tenacious of existence here than elsewhere in medicine. It is well indicated in the popular view that the patient could do better if he would only try, that like Dickens' Mrs. Dombey, he is collapsing merely for lack of "making an effort," that he wilfully refuses to take his mind away from himself and his symptoms, and substantially he is suffering from either deliberate perversity or capricious failure to use the will-power and self-control at his command.

This view is also clearly mirrored, though usually in a more veiled form, in most medical treatises on the subject,[1] and indeed comes to expression in the very language used: Writers speak, for example, not of making a diagnosis of hysteria, but of "detecting" it, various signs are said to indicate "malingering or hysteria" in a tone that leaves it doubtful whether the two terms are synonymous or supplementary, and an author's attempt to salve his medical conscience by appending to a long moral homily on simulation the conventional sentence that "one should not forget that after all hysteria is a disease," is often only too plainly an after-thought.

It is not maintained here that this lay attitude is either unfounded or unjustified—it contains, in fact, a germ of disguised truth—but there can be little doubt that it often serves to aggravate the sufferings of the patient. These are often in themselves so bizarre as to provoke rather ridicule than sympathy, as for instance, in the case of an acute phobia of a familiar object or occurrence, and for this reason the patient often conceals such symptoms from the persons of his environment. His failure to recognize the unconscious significance or logical meaning of his symptoms is accentuated by his friends' conviction that they have no meaning, and this again adds in an indirect way to his distress—namely, nervous suffering differs strikingly from most bodily kinds in its incomprehensibility; an absurd obsession haunts the patient's mind, a gust of fear or depression sweeps over him irresistibly and yet apparently without any adequate cause, and not the least of his terrors is the sense of an unknown but always present danger, of the impossibility of predicting the moment when some symptom, new or old, will suddenly take possession of his faculties. This feeling of being in the dark, of not being able either to understand or deal with

[1] Thus F. T. Roberts, in his compendious "Theory and Practice of Medicine," gives a long list of "causes" of hysteria—from "keeping late hours at parties" to "senile degeneration"—and apparently conscious of his failure to cover the ground, despairingly adds that "in some instances the condition called hysterical can only be attributed to wickedness and perversity." His attempts at a descriptive psychology of the malady consist of the remarks that "such patients talk a great deal of nonsense. They have an exaggerated feeling of self-importance; seek attention from others; and are, as a rule, never so pleased as when they become objects of attraction or sympathy, or are creating a sensation."

the threatened peril, is often most distressing, and stands in contrast with the much greater feeling of security in regard to a physical disease, where usually one has at least some idea of what to expect, some guarantee of the reasonableness of the ills, and at all events not the utter uncertainty so characteristic of the neurosis. Without pretending to exhaust the peculiar features of neurotic suffering we have pointed out that there are respects in which it is more distressing than most forms of bodily disease; it is at least certain that many patients who have been subject to severe forms of both declare that the latter, however bad, is more endurable than the former.

2. **Frequency of Neuroses.** — Neuroses constitute perhaps the most widely spread form of disease. Persons quite unaffected in this way certainly form the minority of the general population. The high frequency incidence of the neuroses is commonly underestimated through a number of considerations being incorrectly appreciated. A large proportion of cases never reach medical inspection at all. Many patients, for instance, with obsessions, do not regard their condition as being strictly pathological and amenable to medical treatment, but struggle along as best they can, attributing their troubles to unavoidable personal peculiarities. Others are too ashamed of the ridiculousness, or of the unpleasant content, of their obsessions to bring themselves to seek advice. Similar remarks apply to the numerous cases of sexual perversion, of anesthesia and impotency, and of criminality of a neurotic origin. Then there should be borne in mind the tremendous frequency of drug habits and of excessive drinking, the neurotic basis of which is now known. There is further the large number of people suffering from what may be called social maladjustment, consisting in inadaptability, inefficiency, inhibition, incapacity to meet necessary situations, abnormally intense fear of death or of poverty, hopelessness or even despair, and so on; it is now known that factors similar to those present in the neuroses are also in action in these cases. The appalling roll of yearly suicides—the least frequent outcome of such states of mind—should alone warn us against estimating too lightly these more social forms of neurosis.

Even of the cases that reach the physician a considerable proportion are not recognized to be neurotic, but are often wrongly diagnosticated as organic disease. Some of these conditions we shall have occasion to speak of later; instances are various vasomotor states (edemas, etc.), pseudo-angina, and other cardiac syndromes, bronchial asthma, enuresis, pavor nocturnus, and particularly various gastric and intestinal conditions. It may be said that in general there is a tendency to attribute neuroses that have local manifestations to local organic causes; thus pollakuria, spermatorrhea, and dysuria to renal, prostatic, or urethral disturbances, constipation to primary muscular atony, gastric symptoms to toxins, visual ones to refractive errors, and so on.

3. **Loss in Social Efficiency Due to Neuroses.**—The loss in social efficiency resulting from neuroses is especially great, for two reasons. Only a small minority of the sufferers are totally incapacitated, so that

those affected are mainly people on whom the chief responsibility of life falls, in public affairs, earning functions, or the rearing of a family. Further, the central symptom of any neurosis is the interference with social capabilities, this being of the very essence of the condition. It is highly important to realize that, strictly speaking, neuroses are not diseases in the medical sense at all, but only in the social sense. In the former sense a disease is the product of the interaction between a given individual and an injurious, non-human environment, whether the latter be a physical trauma or an invasion of microörganisms. On the other hand, a social disease is the product of the interaction between a given individual and a certain human environment. Put a little figuratively, it may be said that neuroses are the result of a conflict between the individual and society, whereas other diseases are the result of a conflict between the individual and nature. This fundamental distinction is often not grasped by members of the medical profession, who commonly regard all disease from the one standpoint, and the failure to grasp it is an important reason why the pathology of the neuroses has in the past been investigated with such signal lack of success.

4. **Menace of Quackery in the Neuroses.**—The lack of success just mentioned has of recent years had serious consequences for the medical profession, the gravity of which shows little sign of diminishing. We refer to the increasing menace betokened by the prevalence of quackery, for there can be little doubt that the successes gained by quacks, which constitute the substantial basis of their prosperity, are for the most part gained in the sphere of the neuroses; the greater accessibility of their wares to the public that advances in the field of modern advertising have made possible has furnished an attack on medical therapeutics in its most vulnerable spot, namely, the treatment of the neuroses. Of recent incursions made by various religious movements, Eddyism, Dowieism, Emmanuelism, etc., we shall have occasion to speak later. Fortunately, there has of late been a gradual realization on the part of the medical profession that this state of affairs is in great measure to be ascribed to their having failed to pay adequate attention to the subject of the pathology and treatment of the neuroses, and to the psychological side of medicine in general.

5. **Relation of Neuroses to Psychoses.**—It has, within the last two decades, been discovered that the study of the neuroses is not merely a useful, but an indispensable path to that of the psychoses. The common failure to appreciate the distinction between bodily and social diseases has been even more pronounced in the case of the psychoses than in that of the neuroses, and the early successes of morbid anatomy in elucidating the causes of the kinds of insanity due to the former type have unhappily served to accentuate this confusion. On the other hand, the knowledge gained through study of the neuroses has been applied with brilliant success to the elucidation of the previously unintelligible tangle of mental processes present in such conditions as dementia præcox and manic-depressive insanity, and it can now be

stated positively that no one who is destitute of this knowledge can hope to unravel the more complicated problems of insanity. The path to psychiatry from neurology and internal medicine must necessarily lead through the study of the neuroses.

6. **Study of Neuroses and General Medicine.**—Last but not least is the consideration that the study and treatment of the neuroses opens a broader outlook for medicine than does that of any other of its branches. The modern psychopathologist is obliged to consider social problems, to study and form some estimate of social institutions, to an extent unknown to the older generation of physicians. He can no longer remain confined to the narrower field of pathology proper, and on entering that of sociology does so with ability to contribute special knowledge of the utmost importance. On such questions, for instance, as the education of children, both normal and abnormal, the status of marriage, which seems to be about to undergo considerable modifications, he brings new and fundamental points of view that will have to be taken into consideration. As a critic of civilization and its tendencies, of cultural movements and ambitions, his pronouncements will have an authority second to none, instead of, as in the past, being restricted to the matter of physical health. Further, as particularly Freud and his school have shown, the knowledge gained from the detailed investigation of the neuroses has already proved capable of throwing an astonishing amount of light on the psychology of both the normal and abnormal. Contributions from this point of view of the greatest interest have been made on the development of genius on the one side of the average, and of the criminal on the other, on the significance of art, religion, and philosophy, and on character formation in the normal as well as in the eccentric. They have also revealed an astonishing closeness of structure between the imaginative phantasies of the individual, as manifested, for instance, in normal dreams or neurotic symptoms, and those of the people, as seen in age-old myths, superstitions, folk-beliefs, and legends, and the interpretative study of the former class has furnished the key to the understanding of the deeper meaning of the latter. Not only mythology, but also such sciences as history, anthropology, and philology have also been extensively placed in the debt of the new science of clinical psychology, and the same is true of every branch of psychology in its broadest and most vital sense. From all sides, therefore, the study primarily with therapeutic aims of the neuroses is building a science that transcends the narrow bounds of the older medicine, and is projecting this toward a dominant position in the highest sphere of knowledge, that of the mental and social sciences.

We have pointed out that from manifold points of view the study of the neuroses is of far greater importance than is commonly realized by the physician. It is not too much to say that at present there is no other branch of medicine so fraught with individual and social responsibilities, so promising in the lines of research it opens up, or so evidently destined to enhance the general importance of medicine.

Divergent Views.—It is unfortunately true that in hardly any branch of medicine are there such divergent views expressed as on the subject of the neuroses, and that in regard to every aspect of it, the etiology of them, the classification, pathology, diagnosis, prognosis, and consequently also treatment. This state of affairs readily gives rise, in the minds of those who have not specially investigated the matter, to the conclusion that, perhaps owing to inherent difficulties, there can be but little positive knowledge extant on the subject, and that the different opinions expressed by various writers represent merely so many ill-founded speculations.

Now it cannot be too strongly stated that such a conclusion would be far from correct. Not only does a large body of definite and soundly based knowledge exist, but it can be shown that the diversity of opinion prevailing on the subject is only in part, and even then only indirectly, to be traced to any inherent complexity in it. The truth is that it is in much greater degree due to the circumstance that many of the opinions promulgated, even those issuing from men of authority in other branches of medicine, are to a remarkable extent of a superficial character, and are based on singular misapprehensions of the problems involved. A number of these opinions are indeed merely repetitions of the vague notions entertained on this subject before the advent of the new science of clinical psychology, and have about the same value at the present day as the guesses at the pathogenesis of various diseases that were current in the prebacteriological era of medicine. The reason for this is that the present subject deals with (psychological) matters the study of which is approached by medical investigators who often are inadequately prepared for the task, who view the problems from the purely medical and physical standpoint instead of from the social and psychological one, and who entirely fail to realize the important distinction between the two. In no other branch of medicine would it be possible for distinguished physicians to express judgments so out of harmony with the observable phenomena as is commonly the case in the region of psychopathology; the number of those whose training and research gives a scientific value to their conclusions is, in comparison with the number of writers on the subject, deplorably small.

A simple instance of the current discordance of views is that on the question of the prognosis and gravity of the neuroses. One may here roughly compare, with notable individual exceptions, the following series. The most favorable opinion given as to the prognosis of hysterical symptoms is, as a rule, that emanating from surgical specialists. According to laryngologists, for example, a case of hysterical aphonia is to be "cured" by an application of faradism as readily as according to ophthalmologists one of hysterical blepharospasm or amblyopia is to be "cured" by other equally convenient procedures. The reason for this lightness in the view of the case is evident. The next attack of aphonia usually leads the patient to consult a different and presumably a better laryngologist, to be "cured" afresh, and in any event, it is only rarely that such specialists have any conception of what a small

part of the whole clinical picture is constituted by the particular symptom for which their advice is being sought, or of the extreme readiness with which such symptoms are replaced by others in regions not within their purview. A general surgeon is usually more impressed by the obstinacy of the complaint, for he is more apt to be confronted by a history of several recurring symptoms, such as hysterical hip disease, pseudo-appendicitis, gangrene, and so on. Both a special and a general surgeon, however, will often cheerfully undertake the treatment of such cases, with no apprehension of the complexity of the underlying morbific agents.

A neurologist, on the other hand, is more likely to take a serious view of the matter, partly because he sees more of the graver forms of the disease, and so is the general practitioner, who often is for many years perplexed, or even tormented, by the tenacity of a given case that may in the course of its evolution present a bewildering variability of manifestations. In both these instances, however, the physician is apt to be influenced by the considerations adduced above, which by impressing him with the apparent senselessness of the symptoms and the wilfulness, perversity or even simulation of the patient, may lead him to withdraw his sympathy and understanding, with the consequence of blinding him to the actual amount of inefficiency and suffering that the neurosis has imposed.

The psychopathologist, who has not only to give his attention to reviewing and investigating in detail all the present and past manifestations of the disorder, but also to estimating precisely the significance of them and their effect on the patient's life, becomes more and more chary, as his experience increases, about expressing too optimistic an opinion on the future of a given case, and more and more rigorous as to his criteria of what constitutes a true cure. Many workers in this field consider hysteria to be as incurable as cancer, and limit their ambition to palliative efforts in the hope of at least making the patient's life fairly tolerable; a man like Janet, for instance, with his almost unrivalled experience, is dishearteningly pessimistic, even with the specially skilled knowledge of therapeutics at his command. A psychopathologist is often amazed at the glibness with which the word cure is used in connection with the neuroses, and is bound to contrast it with his experience of numerous cases that were at one time considered mild, and thought to have been cured, but which later relapsed into the gravest forms of nervous invalidism. In general it is a sound maxim never to be too confident in expressing an opinion as to the future of any case of neurosis, certainly unless it can be submitted to a much more radical treatment than is commonly employed.

The discordance just noted is a very simple one, being based on a mere matter of observation. If the estimate of the facts themselves differs according to the eye that views them, it is not to be wondered at that the more complex matter of interpreting the facts differs still more greatly according to the mind that judges them, and this we shall see is the case. Before passing on, however, it will be well to remark

here on the evident consideration that the opinion as to the mode, duration, and thoroughness of treatment advisable must be expected to vary with the preliminary estimate made by the physician of the gravity of the disorder. Those who regard it lightly naturally treat it lightly; those who know its potentialities treat it more seriously. An amount of trouble and time that one physician might consider simply preposterous would be regarded by another as doubtfully adequate. In essence this means that quite different tasks are being attempted by the different therapeutists; whereas one is simply attempting to remove a given external manifestation, and that for a time only, the other aims at effecting nothing less than a revolution in the patient's personality, at abolishing inhibitions, solving internal conflicts, healing and effacing old mental sores, and freeing the patient from the encumbering weight of accumulated burdens so that he may face with equanimity all that the future may have in store for him, and be truly equal to the battle of life wherever and however it may press.

From the point of view just developed, it is easy to understand why the methods of treatment presently to be described differ above all in relative complexity, since the aims attempted are themselves different. It may be said with fair justice that the simpler the method the lowlier is the therapeutic aim, and that the more thorough it is the loftier is the aim. It is unfortunate that this is so, for the desideratum would be to find a simple method that could accomplish all that the more elaborate ones can. As, however, this seems impossible, it is important to realize the state of affairs. The more elaborate methods have been devised not from a perverse love of complexity, but from a dissatisfaction with the mediocre results yielded by the simpler ones. In the following pages the attempt will be made to lay stress on the aspects that the different methods have in common, rather than on those where they differ, and it will be seen that the diversity of them is due much more to a divergence of aim than to any heterogeneity of principle concerned.

Classification.—It is necessary to come to a preliminary understanding on the matter of classification, for without this misconceptions are bound to arise. If, for instance, an author describes a method for the treatment of neurasthenia, it is imperative that we know what he means by this term before we can judge of the value of the method; it may well be a good one for the condition he has in mind under the term neurasthenia, and quite unsuited for that which other writers understand by this. It would be out of place here to develop the principles of classification, and we shall confine ourselves to the task of presenting the matter as simply as is consistent with our aim—namely, of establishing a sufficient basis for comprehension of the different modes of treatment. It will further be necessary so to explain the division adopted as to allow the reader easily to find any syndrome which perhaps he may have been accustomed to see otherwise grouped.

French and German Classifications.—Broadly speaking, the system of classification proposed up to the present can be divided into the

French and the German ones, for modifications elsewhere suggested are, with few exceptions, of minor importance. As the French system is based on an hypothesis (of mental degeneration) that in the writer's opinion is ill-sufficiently founded, and at the best affords only a limited perspective of the problems, the German one will here be adhered to. The most prominent distinction between the two is that concerning the conception of psychasthenia. According to the French view, particularly Janet's, this represents a unitary morbid state in the same sense that Kraepelin's dementia præcox does; that is to say, the common characteristics of the various syndromes that occur are more prominent than the differences between them, while each syndrome resembles the other members of the group more closely than those of any other (non-psychasthenic) group. According to the German view, on the other hand, the premises on which this grouping is established are unsound, inasmuch as, through too much attention having been focussed on some features of the condition to the exclusion of others, the unitary bonds have been exaggerated in importance, and the distinctions between the individual syndromes not properly appreciated. The cases described as belonging to this group would, on this view, be considered as really heterogeneous, the greater number being cases of dementia præcox (a disease unit that had not been established at the time that the conception of psychasthenia was being formulated), obsessional neurosis, anxiety-hysteria, and manic-depressive insanity (none of which conditions have yet obtained general recognition in France as independent units.

Classification According to Etiology.—The first step to be made in the classification of the neuroses is the recognition of the division between those in which the etiological factors are predominantly physical, and those in which they are predominantly mental; the latter may be distinguished from the other neuroses by adding the prefix "psycho." It is not maintained that the distinction between the two groups is theoretically as sharp as some writers hold, but it is sharp enough to make the division one of considerable practical value, and it has the advantage of representing a distinction almost universally drawn; the characteristic member of the neurosis group is neurasthenia, of the psychoneurosis group, hysteria.

There are two other plain differences between the two groups besides the pathogenetic one just mentioned. (1) In the neuroses proper the pathogenic agents are operative at the actual time when the symptoms are being manifested (Freud hence speaks of "Aktualneurosen"), while in the psychoneuroses they always precede them in time—commonly by many years; the ultimate causes of the former lie in adult life, of the latter in childhood. (2) The individual symptoms of a psychoneurosis are psychogenetically determined, that is to say, they can be shown to have a definite meaning expressible only in mental terms; on the contrary, no form of psychological analysis is capable of reducing the individual symptoms of a neurosis to any mental meaning.

It was remarked above that the distinction between these two classes is not an absolutely sharp one, and increased experience and study of them lays more and more stress on this. It has been found that a given amount of physical noxon will produce much greater effect with one person than with another, and these individual differences can be traced to past psychogenetic factors of the type operative in the psychoneuroses. This evidently reduces the difference between the two classes, and almost makes it a matter of degree rather than of kind. In some cases the early psychogenetic factors are so important as to produce a neurosis proper in the presence of physical noxa that normally can be tolerated; in other cases these factors, even if present, are of no greater importance than in the normal, and in themselves would have no morbid influence, but the physical noxa are so potent (in amount or duration) as to lead to a neurosis; in still other cases both sets of morbid agents are operative, and it may be difficult to assign to each its relative importance.

The point just made is of considerable practical significance for the following reason. The chief physical noxa are of such a kind as to be either easily remediable by a word of suitable advice or else to be almost impossible to remove; this will become plainer when we consider the individual examples under their appropriate heading. Now in the latter event the therapeutic problem can be attacked from another angle. The psychogenetic factors can be dealt with, by methods later to be described, and it is remarkable how many patients can be relieved in this way; such patients, namely, can tolerate without much ill-effect the physical noxa alone, when they are seriously affected if to these is added the influence of psychical noxa.

If the two main groups just indicated pass over one into the other, it is to be expected that the subgroups will do so in an even greater degree, and this is found in fact to be the case. It hence comes about that a considerable number of generalizations can be framed, which are equally valid with all forms of neurosis. The same applies to some extent to therapeutic measures, a circumstance that renders it inexpedient here to try to cover the whole ground of therapeutics under each separate neurosis. Indeed to do so would involve an intolerable and quite impracticable amount of repetition. All that will be attempted, therefore, will be to discuss the line of treatment appropriate to each neurosis, and to indicate the section under which is to be found the more detailed account of the measures suggested. It has been decided to describe the subject of mental treatment (psychotherapy) in general under the heading of hysteria, with which it is so closely associated historically; this explains the apparent disproportion of the space devoted to this disease.

It need hardly be said that in a work of this kind the subjects of pathology and diagnosis can be dealt with only in the briefest possible way, and what may be said on them will be strictly subordinated to the main function of the book. Some reference to them, however, is quite unavoidable, for without at least a partial exposition of the

different views held, the accounts of the various therapeutic measures would be largely unintelligible. It is also evident that we shall be concerned with the principles of treatment rather than with the details of applying them, for some of these, such as hydrotherapy, the use of electricity, etc., are in no way peculiar to the treatment of the neuroses, while others, particularly some of the psychological procedures, would necessitate an exposition far more extensive than would here be possible.

ACTUAL NEUROSES

Neurasthenia.—Nosology and Pathology.—The first, and all-important, point to grasp here is that an extraordinary number of cases are brought under this heading that properly belong elsewhere. Since Van Deusen first described and named this disease, over forty years ago, there has been a steadily increasing tendency on the part of the medical profession to include under it all sorts of nervous symptoms and syndromes provided they were not obviously of a hysterical order, until at the present day it comprises a conglomerate grouping of disparate conditions, the bonds between which are often of the flimsiest description. Although this attitude is still represented by most medical text-books, usually written by authors who have made no special study of this field, neurologists and psychopathologists have for many years evinced a growing dissatisfaction with it, and no authority on the subject now uses the term neurasthenia with the wide connotation that it popularly receives. Several serious attempts have been made to dismember the group, and before any rational conception can be formed of neurasthenia, it is essential that at least the following considerations be recognized.

1. Many cases are incorrectly diagnosticated as neurasthenia from a non-appreciation of the fact that psychoses are often to be seen in practice in a mild form; such are notably manic-depressive insanity (the cyclothymic variety) and dementia præcox. If it is remembered that these two disorders make up over two-thirds of the cases of insanity in insane asylums, and that probably there are more patients suffering from them who are not confined in asylums than who are, the frequency with which this error in diagnosis must be committed will be evident.

2. The greater number of cases thought to be neurasthenic are really cases belonging to other forms of neurosis, which in etiology, pathology, and consequently treatment are quite distinct from this. We refer particularly to cases of anxiety neurosis, anxiety-hysteria, and obsessional neurosis, conditions which are to be separated from neurasthenia on the grounds just mentioned. It is better to restrict the term neurasthenia to its primary meaning of an enfeeblement or fatigue neurosis, the cardinal symptoms of which are: An inordinate sense of mental and physical fatigue, "brain fag," and difficulty in concentration of attention and application to work, sense of pressure

on the head, irritable spine, and various paresthesias, particularly of the joints and muscles. Certain gastro-intestinal symptoms, such as constipation and flatulent dyspepsia, also occur, but are more closely related than the other symptoms to complex psychogenic factors. Hypochondriac symptoms, most often related to the genito-urinary functions, form a common complication, and are definitely psychogenic in origin.

3. Even the syndrome just outlined is only to be regarded as truly neurasthenic, in contradistinction to neurasthenoid, after it has first been shown that it has not been secondarily produced by some other disease. It is well known, for example, that this clinical picture may be seen in various toxic states, notably as a sequel to influenza and typhoid fever, and that it is quite common in the earlier stages of general paralysis. It is further important to remember that it may be a manifestation of an underlying hysteria, as Morton Prince first pointed out in connection with cases of multiple personality.

The term neurasthenia therefore as used here, may be defined as a *primary fatigue neurosis, i. e.*, one that is not merely a syndrome of another disease. It is probable that not more than 1 per cent. of the cases usually called neurasthenic are really of this nature; the true cases are commoner in the male sex, particularly among students and business men.

HEREDITY.—It is unlikely that hereditary factors play a prominent part in its production, if only for the reason that the malady is often quite transitory in its appearance. In fact it is generally regarded as the best example of an acquired neurosis, and was thus separated by Charcot from constitutional neurasthenia, and by Janet from psychasthenia, a condition which these authors consider to be essentially hereditary. An acquired factor must therefore be sought for.

TOXIC ORIGIN.—Almost all writers agree that the main etiological agents are of a physical order, but there is less consensus as to the nature of them. The analogy with postinfluenzal states naturally suggests a toxic agent, and the frequent occurrence of constipation one arising within the alimentary tract; this, indeed, is probably the most popular medical view of the complaint. It is, however, only one of the possible ways in which chronic fatigue may be brought about, and we have therefore no right to accept it as an explanation unless there is reason to prefer it to the other possible ones. Against it may be urged the arguments that it is at best a speculative supposition, since no toxins have ever been shown to be associated with the condition, that there is no analogy of any toxin capable of producing a neurasthenic state except for a short while—and then only when the toxin is as virulent a one as that of influenza or typhoid—and that the patients in question are often in perfect bodily health so far as can be determined.

MENTAL STRAIN AND OVERWORK.—Other writers, dissatisfied with this vague supposition, have attributed the condition to mental strain and overwork. There is little doubt that in some cases these are oper-

ative factors, for the condition may disappear when they are removed, only to reappear when they do. They cannot, however, be the specific causes of neurasthenia, for in many cases they are not present at all. It is also unlikely that mere sexual excess, if the functioning is of the normal kind, ever produces neurasthenia, though it is commonly cited as an important cause.

ONANISM.—For many years much importance has been attached to onanism in this connection, and according to Freud it is to be regarded as the specific cause of neurasthenia in the strict sense of the term. This conclusion has to be amplified by the following remarks. The obvious disproportion between the incidence of cause and effect is to be explained by the fact that onanism leads to neurasthenia only under certain circumstances—namely, when it is practised to excess both as regards frequency and length of time, and when it is accompanied by an unusually intense moral conflict. The resulting neurasthenia is only an exaggeration and fixation of the lassitude, fatigue, and general "slackness" that so commonly supervenes on a single act of masturbation performed after a moral struggle. Much of the fatigue, roughly speaking, is the result of the expenditure of nervous energy in the overcoming of the moral scruples, a consummation which is usually achieved only after the accumulation of considerable sexual tension. It is always found that where these scruples are so intense as to be accompanied by neurasthenia there is a deep underlying mental conflict (against, for instance, buried desires relating to sexual perversions or incestuous thoughts) which is symbolized in the phantasies that lead up to the performance of the act; this is a factor of the greatest importance, far more so than the mere physical functioning. The sexual act constitutes, owing to this conflict, an inadequate discharge of the accumulated tension, and is thus an unsatisfactory substitute for the normal one. Another reason for this also is the circumstance that with onanism there is an undue tax on the physical energy of the person, in that he has to provide for himself—both physically and mentally—excitations that normally should come from without. In each act, therefore, he expends as much energy as both partners do normally, a process that easily lends itself to internal disharmony.

If properly inquired for, this etiology will be found to be present in every case of neurasthenia. It must, of course, be remembered that the auto-erotic functioning known as onanism comprises several processes besides manual masturbation. In some cases of neurasthenia, for instance, there is no masturbation, the pathogenic factor being excessive nocturnal pollutions. These pollutions, even when accompanied by disagreeable sensations, represent a sexual act, and are always preceded by dreams in which repressed sexual wishes come, either openly or indirectly, to expression.

It should be borne in mind that the conclusions just stated apply only to neurasthenia as conceived of in the very restricted sense described above. It is also plain that from this standpoint the action of the

other etiological factors mentioned, particularly strain and overwork, is not denied. They are merely relegated to the position of adjuvant or exciting factors, the significance of which may be described as follows: A person in whom the specific pathogenic agents are operative may or may not suffer from neurasthenia, this altogether depending on the intensity of them, but he is in any case less able to withstand reinforcing morbid agents, such as mental overfatigue. In many cases, therefore, the presence of symptoms will be found to vary with the presence or absence of these adjuvant factors, the intolerable sum of noxa being increased by them to an intolerable degree.

Treatment.—From the foregoing it will be seen that the treatment of neurasthenia may be clearly divided into radical and palliative, the latter corresponding with the lines of treatment advocated in medical text-books.

RADICAL TREATMENT.—The radical treatment consists of measures calculated to diminish or abolish the unsatisfactory auto-erotic habits of the patient. It is obvious that this can more easily be accomplished if the situation is such that they can be replaced by normal sexual functioning, though even apart from this it is far from impossible. It is not necessary here to go into the various devices that have been employed to wean patients from masturbation; it may, however, be remarked that any which increase his feeling of moral depravity or his fears as to the effect on his health are peculiarly unsuited to the present circumstances. It is important to realize that a refractoriness in yielding is generally due to the influence of buried mental complexes that can be affected by psychotherapeutic measures to be described later; in obstinate cases, therefore, a course of such treatment is to be recommended, and will usually have the desired result.

PALLIATIVE TREATMENT.—The palliative measures of treatment are too well known to need description in detail. They mainly consist in rest from work and strain, removal of causes of worry or excitement, change of scene and occupation, provision of agreeable interests, hydrotherapy, electrotherapy, attention to general health, and in severe cases a course of Weir Mitchell treatment. All these are at times useful, the details naturally varying from case to case. They all suffer, however, from the drawback that they do not deal with the essential morbid factors, so that when the patient takes up again his old mode of life—often an unavoidable matter—the complaint is apt to recur. It is true that this does not always happen, and there are many cases in which it is possible to advise such an alteration in the daily routine and habits of life as to make all the difference to the symptoms. In slight cases the milder forms of treatment are often quite adequate; in the more severe ones it may be necessary to advise a suitable course of psychotherapeutic treatment that will permanently free the patient from the morbid influences. So long as these are left untreated the prognosis of the case must always be doubtful, for even if the patient recovers from one attack the next one may be longer and more severe, and the end of the case may be one of chronic nervous invalidism.

Anxiety Neurosis.—The symptoms grouped under this term are usually included under that of neurasthenia, an unfortunate error, for it obscures the fact that the pathology of the two conditions are widely different. The group of anxiety symptoms was first clearly described by Hecker in 1893, and was separated from neurasthenia proper independently by Freud in 1895, and Morton Prince in 1897; both the symptomatology and pathology of the condition, however, were inadequately dealt with by the last-named author.

Symptoms.—The name anxiety neurosis (*Angstneurose*) was coined by Freud because morbid anxiousness is the symptom most constantly present, and because all the other symptoms stand in the closest relation to this, and may be regarded as merely manifestations of it. The symptoms may be divided into paroxysmal and interparoxysmal, though the former are often only exacerbations of the latter. In an acute attack the dread may be very intense, and is often accompanied by a feeling of congestion in the head, with a fear of impending apoplexy, insanity, or death; consciousness may be lost. The thought processes are either hurried and agitated or they may be inhibited, so that the mind "becomes a blank." In mild attacks the patient experiences merely a sense of embarrassment or confusion, and is unable to collect his thoughts; common occasions are just before undergoing an oral examination, delivering a speech, or appearing on the stage. There is a great increase in frequency of the heart's action, often with anginal pain, marked palpitation, fluttering, and irregularity; it may seem temporarily to stop. General tremor and sweating occur, and the pupils are widely dilated. Nausea, and sometimes vomiting, is present; excessive and irregular contraction of the involuntary muscle fibers takes place, which may result in a peristaltic diarrhea, strangury, tenesmus, seminal or vaginal emissions, vasomotor constriction, with coldness and blueness of the skin, and so on. The bodily secretions are profoundly affected, cessation of the salivary and gastric flow, with increased pouring out of urine and sweat, being the rule. Respiratory symptoms are in some cases very pronounced, the chief being asthmatic attacks with air hunger and feelings of oppression and suffocation.

Very frequently the attacks are larval or incomplete, that is, only some of the symptoms appear. The commonest of these are attacks of palpitation, vertigo, sudden hunger, sweating, an imperative desire to micturate or defecate, and suffocative feelings. They are accompanied by a variable amount of anxiety, though the patient, having his attention concentrated on the physical disturbance, may not spontaneously complain of this.

In the chronic condition there is an apprehensive expectation, which readily becomes attached to one idea after another that can in any way justify anxiety; such are the idea of poverty or bankruptcy, of loss of health or capacity, of external dangers, such as thunder, accidents, and so on. The anxiety is only loosely attached to these ideas; it is constantly attached only in the case of definite phobias, which do not form part of this neurosis. Disturbances of sleep are almost always

present, insomnia, and nightmare being typical instances. There is a general restlessness, "nervousness," and irritability, with a special hyperesthesia to auditory sensations. Other chronic symptoms are dizziness; vasomotor congestions with coldness of the extremities that alternates with flushes of heat; gastro-intestinal disorders, particularly nausea and diarrhea; cardiac and respiratory manifestations, such as anginal pain, oppression, and the periodic drawing of deep sighing breaths; and various paresthesias that may simulate rheumatic or neuralgic pains.

It will be seen that all the symptoms, both mental and physical, may be described as exaggerations or distortions of the normal physiological accompaniments of fear. The morbid nature of the condition essentially consists in the patient's suffering from an intensity of fear, or anxiety, that the external circumstances are inadequate to explain.

Diagnosis.—In making the diagnosis of the condition two of its cardinal characteristics should always be kept in mind: (1) The great tendency there exists referring to one or other system of organs to be so prominent as to dominate the clinical picture. When this is so, attention may be unduly attracted to the main symptoms to the exclusion of the accessory ones, and the general nature of the condition overlooked. Many cases of asthma, angina, gastric and intestinal disorder, and so on, are in this way wrongly referred to the organic system apparently implicated, and the primary neurosis not recognized. (2) The mental manifestations are often subordinated to the physical ones, and the observer may in this way be misled into overlooking the former. The undue prominence of the latter manifestations is a characteristic feature of morbid anxiety as contrasted with normal fear, and particularly with the slighter and more chronic forms of the condition.

Etiology and Pathology.—Further details of the symptomatology, etiology, and pathology than can be given here must be sought in Freud's original writings; a good clinical description is also given by Loewenfeld.[1] Those interested in the manifold views that have been put forward concerning the pathology of the condition are referred to a detailed discussion of them by the present writer.[2] Only the conclusions there reached will here be related. Two views are currently maintained that seek to explain the condition on a physical basis; one postulates an undue excitability of the centres concerned in the regulation of the sympathetic nervous system and the functioning of internal organs, the other an undue excitation of the nervous system by impulses arising in these organs. All writers are agreed that we have to do with what is essentially a hyperexcitation process; some think that this hyperexcitation is a relative one, due to the action of normal stimuli on overexcitable centres, others that it is an absolute one, due to the action of excessive stimuli on normal centres. The failure to

[1] Die psychischen Zwangserscheinungen, 1904.
[2] Journal of Abnormal Psychology, vol. v, No. 2.

find any source for pathological stimuli in the internal organs has led many writers to predicate the former view, although there is as complete an absence of positive evidence for the one as for the other. Janet came near to the solution by pointing out the analogy between the phenomena and those of an aberrant discharge of visceral excitations the normal outlet to which is blocked, and Freud finally solved it by discovering the source for the undue excitation, not where it had previously been looked for, in pathological disturbances of the internal organs, but in a more physiological region—namely, in excessive and unrelieved sexual tension. His conclusion may be stated as follows: Under certain circumstances sexual excitations arise that cannot follow their natural course of leading to either physical gratification or even conscious desire for such; being deflected from their aim they manifest themselves mentally as morbid anxiety, physically as the bodily accompaniments of this. The relation, and mode of interaction, between the biological instincts of fear and sex cannot here be gone into, as we are not concerned with the theory of the neuroses.

Everyone who has seriously investigated the facts has confirmed Freud's view of the pathology of the anxiety neurosis, and it may therefore be taken as a basis for our further discussion of the subject. The individual circumstances under which the condition arises need not be detailed here; typical examples are the overarduous embraces of betrothed couples, especially during long engagements; the employment of certain harmful devices for the prevention of conception, particularly coitus interruptus—this being probably the most frequent cause of the neurosis; the abrupt introduction of girls or women to gross sexual experiences; disproportion between desire and potency, or between desire and opportunity for gratification, a common state of affairs in both sexes after the age of fifty; and, under certain circumstances, particularly when previous indulgence is suddenly given up, sexual abstinence. Any of these circumstances is the more likely to produce an anxiety neurosis if the suppression of desire is reinforced by undue repression of mental impulses. It will be noticed that the etiology of the anxiety neurosis stands in almost direct contrast with that of neurasthenia; in the former the afferent excitations are deficient, and the efferent discharge excessive; in the latter the afferent excitations are excessive, and the efferent discharge deficient.

As in the case of neurasthenia so also here a considerable variety of adjuvant factors may be operative, the chief being any natural cause of apprehension—illness of a relative, fear of failure, and so on—fright, worry, grief, and mental strain. It is a common occurrence for the outbreak of the neurosis to be determined by one of these factors, and even for the neurosis to disappear, either partly or altogether, when the influence of such factors cease. Any or all of them, however, may be absent in a given case, whereas, on the other hand, the specific and essential factor is invariably present; no anxiety neurosis will be found in a person whose sexual desires are being gratified. As with most other diseases, *e. g.*, infective fevers, the specific agent may be present

without causing the disease; it all depends on the intensity or dosage. In such cases the added strain produced by an adjuvant morbid agent may make a previously latent neurosis manifest, and when it ceases the neurosis may once more become latent; under such circumstances a casual observer may erroneously infer that this is the essential cause, in much the same way that fright was once thought to be an adequate cause of Graves' disease. The truth is that the influence of the specific factor lowers the person's resistance to the trials of daily life, so that he falls a victim to them when he otherwise would not. In many cases the action of any adjuvant factor is not necessary to evoke the disease, the intensity of the specific factor being great enough to effect this alone.

Treatment.—As with neurasthenia this may be divided into radical and palliative.

RADICAL TREATMENT.—The essential disturbance in the sexual life should be ascertained, and if possible corrected. In many cases this is easily effected, for instance, by inducing the patient to replace the practice of coitus interruptus either by unimpeded intercourse or by a more hygienic preventive measure. In other cases it is out of the physician's power even to advise a correction of the sexual life, such as with many cases of enforced abstinence. He then has two alternatives: he may either confine himself to palliative treatment, which in some cases is quite adequate to the needs of the occasion, or he may undertake a psychotherapeutic treatment that will enable the patient to endure with less ill-effect, and often with none at all, the given specific morbid influence.

In order to make this latter point clearer we shall have to forestall a little the discussion that will follow later. Two illustrative cases may be chosen to explain the matter: On the one hand, that of a man whose early mental development has been as healthy as possible, but who is suffering from an anxiety state induced by the performance over several years of coitus interruptus (carried out in the way most harmful to himself, namely, by paying consideration to the tempo of his wife's feelings); on the other hand, a man whose early mental development has been such as seriously to affect his psychosexual life, so that he is unable to obtain gratification even when the external circumstances are favorable—for instance, he may be actually impotent—and who also develops an anxiety state from unrelieved sexual tension. The former represents a case of anxiety neurosis, the latter one of anxiety-hysteria. Between these two extremes all possible gradations are to be met with, the relative importance of the current physical disturbance and of the past psychogenic one varying from case to case. A common midway type with harmful early influences of a certain strength, who does not suffer from anxiety symptoms provided that his sexual functioning is absolutely normal, but who does as soon as any deviation is made in this; he is less able than a healthy man to endure without ill-effect a deviation from the normal functioning, and may, for instance, suffer from various symptoms as the result of prolonged sexual abstinence. Now it is clear that with

such a case as this, treatment could be directed either toward the physical or toward the mental aspect of the etiology. The former is often the more easily remedied, but when for various reasons this is impracticable, one can have recourse to the more complicated line of treatment.

Increasing experience has shown that many more cases than was at first thought belong to this type of double etiological factors, being, therefore, mixed cases of anxiety neurosis and anxiety-hysteria. There is certainly a striking variation in the extent to which different persons are affected by exactly the same physical factors, and this variation is found on investigation to be due to constitutional factors that have arisen in the course of early mental development, and which can be favorably influenced in a remarkable degree by appropriate mental treatment.

PALLIATIVE TREATMENT.—This is very similar to the treatment mentioned above in reference to neurasthenia, and is often a useful adjunct to a more radical line of treatment. Avoidance of excitement (of any kind, not merely of occasions that might arouse sexual feeling), of worry, of tasks and situations that might cause apprehension, change of scene and interests, a generally hygienic life—all these are naturally helpful when they can be put into practice. It is much more satisfactory, however, to be able to bring the patient to such a state that he can with comfort face all the situations and difficulties of an ordinary life, than to leave him in one in which he is only free from suffering on the condition of leading an artificially restricted life, and this desideratum can never with certainty be achieved except through one of the two radical lines of treatment indicated above.

The question of symptomatic treatment should also be mentioned. This proceeds along the usual medical lines, the treatment for nausea, diarrhea, tachycardia, and so on, so that it need not be detailed here. Sleeplessness is often a troublesome symptom, and it is important to exhaust all other measures, such as hot baths, wet packs, etc., before resorting to hypnotic drugs. The same is true in an even higher degree of the use of opium to relieve anxiety, although one occasionally meets with instances of severe and prolonged acute attacks in which it is expedient.

PSYCHONEUROSES

Hysteria

The term hysteria is here employed in accordance with current usage, so that no discussion of the symptomatology or nosological status will be necessary. The views as to the pathology and treatment may conveniently be divided into two sets, according as they lay stress on the physical or the mental aspects.

Physical Measures.—In the middle of the last century, at a time when the conception of disease as being essentially a problem in morbid

anatomy reigned unchallenged, attention was especially attracted to the physical manifestations of hysteria, these promising best to afford a clue for the discovery of the seat of the supposed "lesions." A paralysis or tremor of the arm was regarded as indicating an underaction or overaction respectively of the cortical arm centre, though it might just as well have been attributed to an affection of the brachial plexus so far as any consideration was taken of the actual characteristics of the symptoms. The microscope obstinately refusing to reveal any changes in such centres, the conclusion was reached that the fault lay in the imperfections of the microscope, and that these changes were too minute to betray themselves except by disturbances in function. An interesting relic of this fiction is to be found in the now antiquated expression of "functional nervous disorder," which is still used in many medical and even in some neurological text-books.

It need hardly be remarked that this simple view of hysteria has been completely overthrown by the researches of the last thirty years, and the only reason why the line of treatment based on it needs to be considered here is that it is still under many circumstances useful, though it produces its beneficial effects in a very different way from that which was originally intended.

WEIR MITCHELL TREATMENT.—The classical example of the physical type of therapeutic measures is the well-known Weir Mitchell treatment. Starting from the two gross assumptions, first that the disturbance consists in an irregular and unstable functioning of certain brain cells, and secondly, that this irregularity must be due to insufficient nutrition of these cells, the attempt is made to remedy the disorder by deliberately overfeeding and fattening the patient. The nutritional aspect was at first the most important feature of the treatment, as is plainly enough indicated in the title of Mitchell's book (*Fat and Blood, and How to Make Them*), and it was only reluctantly that he decided to advise complete rest, after finding that it was easier to fatten resting patients than ambulatory ones; it is thus a little irony of history that his treatment has come to be known as the "rest cure." The massage and electricity were also secondary adjuncts to the chief aim, being necessary corollaries of the overfeeding and rest.

The feature that has proved of most significance in the treatment, apart from the personality of the physician is that of isolation. In many cases this has a most favorable influence, its good effect—evidently a purely mental one—being due to the respite from various pathogenic social factors. In many other cases the effect of isolation is the very reverse of beneficial, and may be even calamitous; one reason for this, but by no means the only one, is the increased opportunity for fruitless introspection and hypochondriac worrying combined with the withdrawal from social activities and interests that had furnished at least a partial outlet for the disharmonious tendencies.

The personality of the physician, and his mental handling of the case, is a still more important factor in the treatment. It is now known that the good results that have sometimes been obtained by the Weir

Mitchell treatment have been chiefly brought about by the suggestive influence of the physician, a matter that will be discussed later, and this is the great reason why the treatment has yielded such strikingly different results in the hands of different men. With a powerful personality, such as that of Mitchell himself and of many of those who have advocated the method, it is not at all surprising that it has been possible to achieve good results in certain cases; but the variation in effect, and the frequency of disappointing failures, have demonstrated that we have not here a method such as was originally hoped—namely, a series of purely physical measures on which definite reliance could be placed.

Three things may be postulated about the Weir Mitchell treatment, with a fair degree of certainty: (1) That every one of the individual component measures in it may at times be used to considerable advantage, particularly when they are combined with more radical methods of treatment; (2) that the main effect of the whole treatment is a mental one; and (3) that each measure in it—from the electricity to the personality of the physician—may affect patients very differently according to their mental individuality. The last point may be illustrated by the example of overfeeding by means of large quantities of milk. It has been shown that the different reactions of patients to milk, the avidity with which some take it, the extreme aversion that others have toward it, depends on the way in which the idea of the substance has been previously associated in the patient's mind. In patients of the second type the idea is intimately associated with various buried thoughts that to them are extremely unpleasant or even nauseously disgusting, and their reaction toward the substance itself is determined by these unconscious associations and feelings. If this connection is made plain to them through a suitable mental analysis, so that they realize how they have been reacting, not toward the idea of milk alone, but toward other ideas with which this was unconsciously associated, then their aversion to the substance will entirely disappear. This example illustrates the general proposition that the individual influence of the Weir Mitchell treatment is much more complex than at first sight appears, and is impossible to predict beforehand without knowing a good deal about the patient's personality.

If for any reason it is desired to employ the treatment, then this should be done not as a blind, unintelligent application of a mechanical procedure, as is too commonly the case, but in combination with some form of mental investigation that will enable one to gauge and check the precise effect that the individual measures are having on the patient's mind. With this indispensable proviso it may be said that each of them may at times be employed with considerable benefit, although there is not one of them that is ever absolutely necessary. Improving the patient's nutrition commonly heightens the patient's sense of well-being and self-confidence, thus helping him to face his difficulties. Even overfeeding may be justifiable in certain cases, particularly with thin, irritable patients, and does good by tending to

induce a general placidity. Electricity, of however potent a variety, has little action except on the mind, and for this purpose is quite superfluous. Massage may be useful not only for bettering the general nutrition, but also for improving the blood supply in limbs with vasomotor disturbances. The question as to when isolation is desirable is often a most delicate one to decide. Lévy and others have with right protested against the indiscriminate employment of it still in vogue, while with some systems of treatment, *e. g.*, Dejerine's, it plays a central part. There are undoubtedly cases where the domestic situation militates so powerfully against the efforts toward recovery that it is very advantageous to remove the patient from it, at least for a time; but it must never be forgotten that the therapeutic aim should be, not to ameliorate the environment, and thus ease the patient's difficulties, so much as to train him to face them with equanimity, or at least to tolerate them without an abnormal amount of distress. There can be little question that isolation is much too readily and automatically resorted to; it is a path of least resistance that is easiest to follow, but it leads to the least satisfactory results. A good rule to follow is that every effort should be made to get the patient to enter into some suitable form of activity, whether work, hobby, study, or other interest, as early as possible during the treatment, and the physician should regard isolation, though sometimes necessary, as always an unfortunate interference with the ideal plan; it should be reserved for the last resort, much as a hypnotic drug is for the relief of sleeplessness.

We must thus relegate the Weir Mitchell measures to the position of useful adjuncts, and cannot consider them as justly designed to remedy the fundamental morbid condition. The same is evidently true of all other physical means of treatment, most of which are admittedly only symptomatic. There are, for instance, cases of anorexia nervosa, with actual danger to life from starvation, in which forced feeding may, at least for a short while, be indispensable. Hysterical retention of urine may sometimes make catheterization necessary, and insomnia may call for hydrotherapy. Constipation, diarrhea, flatulence, and vomiting are not infrequently manifestations of hysteria, and in some cases benefit may be derived from the exhibition of the medicinal measures ordinarily employed for such symptoms; the same remark applies to the manifold pains, headaches, neuralgias, etc., the coughs, heterophorias, polyurias, and a host of other symptoms. But in all these cases recourse to physical remedies, though occasionally an unfortunate necessity, should always be regarded as, in a sense, a confession of failure, for all these symptoms can only be really satisfactorily dealt with by discovering the mental significance of them, and dealing adequately with this. Physical treatment of an hysterical symptom, and *a fortiori* of hysteria itself, is equivalent to the treatment of retention due to urethral stricture by means of puncture of the bladder. This analogy, indeed, is singularly applicable, for not only is it in both cases a question of affording temporary relief, while the

main pathological condition is left untouched, but the element of urgency enters into both; an hysterical symptom that, by allowing one no time to remedy the underlying mental factors concerned, obliges one to adopt alleviating physical measures, is a symptom the treatment of which has been neglected until the occurrence of a preventable emergency.

A matter of considerable importance is the circumstance that hysterics have an unusually strong tendency to develop drug habits; the praiseworthy reluctance on the part of most physicians to employ hypnotics, cocaine, and particularly morphine, with such patients is, therefore, thouroughly justifiable.

General Management of Hysterical Cases.—Whatever line of treatment may be decided on in regard to a given case, there are certain general principles, of wide validity, that it is always desirable to bear in mind. These will be discussed under two main headings.

Inadequate Emotional Reaction.—It is necessary to remember that the apparently unreasonable reactions, behavior, and attitudes of hysterics are never meaningless, but when properly investigated always prove to be fully intelligible and well grounded. It is a matter of common observation that such patients react differently from the normal, sometimes toward only a few types of situation, sometimes toward many. The example of fear may be cited: An hysteric may be afraid of objects, situations, or occurrences that excite no fear in the normal, they may, on the other hand, be strikingly unafraid of matters that normally excite anxiety, and in the case of those that normally excite some fear the hysteric may experience either more fear than is to be expected or else less. This sort of behavior, perhaps more than anything else, is the reason for the description, one might almost say the accusation, of want of balance, disturbance of mental equilibrium, and instability that is so often applied to them; the instability seems especially appropriate in the cases where the patient reacts to the same situation now in one way, now in another. The healthy person feels such patients to be abnormal, he cannot predict how they are going to behave, and he cannot understand them; this sense of not understanding is of precisely the same nature and origin as that experienced in regard to the insane, differing only in degree. Things seem to have a different significance for the hysteric from that which they have for the normal; there is present a "transvaluation of their values."

It is not the least of the triumphs of modern clinical psychology to have shown this apparent shifting of values, inducing what is technically called inadequate reaction, is more apparent than real. The observation that a given patient is more disturbed by a simple occurrence than a normal person would be is perfectly correct; the common inference, however, that such a reaction is excessive or exaggerated is erroneous. In both quantity and quality it is exactly the same as that of the normal, strange as this statement may appear; the difference between the two is that the reaction of the hysteric shows a greater "displacement" than that of the normal. This calls for a word of

explanation, and may be best illustrated by a simple example from daily life. A young child who has once been hurt by a doctor, *e. g.*, during the dressing of an abscess, may for some time after be fearful of any other doctor, however innocent his intentions. The child has "displaced" his affect (feeling) of dread from the one doctor to the other, or put in another way, the process may be described as follows: All doctors are "identified" together in his mind, much as if they constituted a unitary person, his attitude toward this imaginary composite has been determined by his unhappy experience, and he behaves toward the second doctor exactly as though he were the first. Overcome by his strong affect, the child is unable for the moment to distinguish between the two men, however well his reason may be able to effect this distinction for him; all he can think of is the important resemblance between the two. His attitude on the second occasion may appear to a stranger to be one of exaggerated and unreasonable cowardice; when correlated with the earlier experience, however, it is at once felt to be quite human and thoroughly intelligible. Now the case of the hysteric is precisely similar. All his so-called exaggerated or abnormal reactions are due to the circumstance that the situation he is reacting to is intimately connected in his mind with another one, in the case of which the reaction was perfectly natural and explicable. Properly speaking, he is reacting not to the present situation, but to the old one, or at best to the combination of the two, and however abnormal his behavior in regard to the present one may appear, it is seen to be thoroughly intelligible and "adequate" as soon as this matter is realized, and his attitude correlated with the significance of the earlier situation.

As has just been indicated, the occurrence of displacement, the being influenced in a present situation by the memory of a similar previous one, is a perfectly normal process. The most prominent distinctions in this respect between an hysteric and a healthy person are that the former is more extensively influenced by past memories than the latter, and—a necessary accompaniment of this—that the connection between the primary and secondary situations is not so evident. The first of these distinctions concerns a fundamental part of the theory of hysteria, as we shall later have occasion to observe. At present we may confine ourselves to the statement that the hysteric is abnormally influenced by his past, and in a sense, is to a great extent still living in his past; the reason for this we shall discuss later. This is simply another way of putting the familiar generalization that the hysteric is imperfectly adapted to the reality of the present.

The second distinction just mentioned may conveniently be illustrated by returning to our example from normal childhood. The resemblance here between the primary and secondary situations, the two medical visits, is so evident as to be appreciated as soon as it is mentioned. Now in certain cases the child's dread may be so intense as to be evoked by a much slighter resemblance, for instance, by the sight of an approaching stranger who may be carrying a black bag or wearing a silk hat. It is plain that here the casual observer might

easily fail to realize what was going on in the child's mind. To an average adult the resemblance between a commercial traveller and a doctor is a relatively faint one; and the common feature that they may both carry black bags is so trivial as to be readily obscured by more important differences; to a child obsessed by a dread of doctors, however, no resemblance is too trivial to awaken the thought of possible danger. The same matter might be illustrated by many other examples from daily life, from the domain of love, of hate, anger, and so on, but it should not be necessary to do this. The essential point is that even in the normal the presence of intense emotion has the effect of compelling attention to the resemblances between any given idea on the one hand, and the idea inherently accompanying the emotion on the other, and of obscuring the differences, however obvious between the two; this law is of cardinal importance in psychology. Thus a woman terrified of railway accidents thinks of danger at every little jerk of the train, a man apprehensive of bankruptcy is panic-stricken by an insignificant fall in stocks, a soldier fearful of treason suspects a spy in every stranger who behaves a little out of the common, and so on. The calm and objective onlooker notes none of the resemblances between these sets of ideas; the connection between a jerk of a stopping train and a railway accident is to him too far-fetched to enter his mind, and a slight fall in stocks does not evoke such a distant idea as that of bankruptcy. In technical language, the process just described is expressed by referring to the remarkable assimilative capacity of a complex;[1] when the affect of a complex is unusually intense any ideas that resemble, however distantly, those of the complex are assimilated to its sphere of activity, and this on the basis of associations that to the objective observer seem totally inadequate. It follows from this that the more superficial are the associations between two ideas that have in this way been drawn together, the stronger is the emotion responsible for the establishment of the connection. Hence one must be prepared to find that with the most important complexes, *e. g.*, those of pathogenic significance, the resemblance between what we have called above the primary and secondary situations is often an exceedingly forced one, and one that would readily be overlooked by an observer not possessing the specific interest that emotionally binds them.

To unravel the train of mental processes in hysteria that leads the patient to react to so many situations of the actual moment as though they were the repetition of much more important past ones is often a matter of very considerable difficulty, not only because the connections between them are commonly so strained as not to occur spontaneously to the observer, but also because these are usually unconscious,

[1] A complex denotes a group of connected ideas invested with a strong body of emotion and having a definite conative tendency (wish, longing, etc.). In actual practice it is found that such localized groups of ideas always present some propensity toward dissociation, the extent of this varying considerably in different instances.

i. e., they are not known to the patient, and he exhibits a strong disinclination to recognizing the presence of them; these latter topics will be taken up again later on.

COROLLARIES. — Some corollaries of considerable practical importance follow from the appreciation of the matters just discussed. The chief one is that in dealing with hysterical patients one should estimate their abnormal reactions and conduct empirically. Knowing that though concretely false they are psychologically true, and therefore that from the patient's point of view they are quite justifiable, one has to take them at their face value. For instance, when a patient is morbidly terrified at such an idea as that of closed spaces, this is not something unreasonable, false, and in a way unreal, as is commonly assumed; it is, on the contrary, a weighty fact, and deserving of serious consideration as such. The patient has a very good reason to be afraid, he has something to be afraid of, and the fear is not only a real one, but it has a real and quite intelligible cause. The strangeness of the process resides in the displacement of the fear from this cause on to an idea that otherwise would be indifferent; some attribute of the idea of a closed space is also an attribute of the idea of which the patient has every right to be afraid, and he experiences fear in the presence of anything that tends to remind him, whether directly or indirectly, consciously or unconsciously, of this.

In dealing with these abnormal reactions the physician may attempt violently to overcome them, by ridiculing them, ignoring them, and so on. If his suggestive influence over the patient is sufficiently great he will often succeed in this, at least for the time being; but if he systematically ignores the truth that many matters have a different significance in the patient's mind from that in his own, that they mean more to the patient than they do to him, he will surely sooner or later—in all but the mildest cases—evoke the patient's antipathy or hostility, who will then leave him with the complaint that he "does not understand him" or that his personality is unsympathetic to him. This attitude of regularly underestimating the significance of the patient's individual reactions, likes and dislikes, attractions and antipathies, though in many cases it undoubtedly produces certain effects—for good or ill—is not designed either to achieve a comprehension of the deep-lying morbid agents or to control and guide these so as to lead to a more harmonious functioning. By these remarks it is not at all meant that the physician is wise in yielding and pandering to all the foibles and whims of the hysteric patient—on the contrary, he should be constantly laboring to approximate the patient's attitude in such matters to that of the normal—but that the abnormal reactions should all be regarded seriously as having a definite significance, and that proper weight should be attached to them in giving the patient this or that advice.

It is further a matter of common observation that the attitude of such patients toward the physician, as toward all other people with whom they come into close contact, is apt to be changeable, fickle, and

generally speaking, unreasonable. Little things in the physician's conduct may be responded to in the most excessive manner; a change in his tone of voice, some personal trick or mannerism, the use of certain words about which the patient has an idiosyncrasy, any such may serve to produce a radical change in the patient's attitude toward him, to lead to respect being replaced by antipathy, irritation, dread, hate, or—most troublesome of all—affection. It is this fickle behavior of hysterical patients that often leads physicians to regard the treatment of them as an ungrateful task, to be avoided whenever possible. And yet, as will have been gathered from the preceding remarks, the matter is far from being so meaningless as it appears. We have here merely another instance of the hysterical displacement of the living in the past and reacting to it over again in the presence of current situations that in some way, however slight, resemble it. What has happened on these occasions is that the patient has, usually unconsciously, been reminded by the physician of some person of significance in his past life, and that he has transferred on to him various emotions which concerned the previous person, and which have not faded in the normal way with the passage of time. He is therefore reacting not toward the physician, but toward the other person who has been brought together (identified) with the latter in his mind. This tendency of the hysteric to link together the people he now has to meet with those of earlier years, particularly with those who have played a prominent part in his affective life, is only one form of his general tendency to view to an abnormal extent all his present life in the light of the past. An hysteric is always out-of-date in his emotional reactions.

It is plain that a physician who carefully studies a patient's reactions, and correlates them with a detailed investigation of the influences of his past life, will be able not only to understand much better the changeable attitudes just indicated, but also to detect much earlier the slight manifestations of the processes underlying them than one who goes his way regardless of such matters, expecting the patient to behave normally and being helplessly surprised when he does not. There is no single feature of any form of treatment of hysteria more important than the regulating of the personal relation between the physician and patient; failure here not only signifies complete defeat of the therapeutic endeavors, but may mean something even more serious, namely, that the patient, through the physician's fault, is in a worse state than before. It need hardly be said, therefore, that too close thought cannot be devoted to this matter, one that is often neglected in the most careless way. Tact and nice perception will do much to prevent failure, but they are often inadequate unless supported both by a suitable knowledge of the kinds of way in which the relation is affected and by as full an investigation as possible of the individual patient's past life.

Resistance.—Hysteria, and, indeed, all psychoneuroses, differ from any form of organic disease in that there is always some mental force in the patient striving against his getting well. This is a rule with no

exception, however much the patient may protest to the contrary. He may have any number of quite genuine motives for wanting to get well, and so far as he is aware he may be thoroughly desirous of getting well; but there is invariably some force acting in the opposite direction; to it is given the name of "resistance" (*i. e.*, to the therapeutic efforts of the physician).

Once this idea is appreciated a number of commonplace observations become more intelligible. To begin with, we have the familiar type of patient whose objection to getting better seems almost openly to be expressed. She constantly has important engagements that prevent her from keeping her appointment with the doctor—or she forgets about it and arrives late—she omits to carry out the latter's prescriptions, and brings forward all sorts of excuses for this—the most characteristic being that she has forgotten—she pays no attention to the advice given, except perhaps by pursuing the opposite path, she imposes obstacles in the way of all the therapeutic aims and thwarts them with the utmost ingenuity, until at last the physician feels tempted to ask her in despair, "Do you or do you not want to get better?" This is the stubborn or refractory patient, the one whose illness seems to be a question of sheer perverseness.

Then there is the patient whose symptoms are so suspiciously well-timed. In this type the attacks of convulsive seizures, painful neuralgias, and headaches, general trembling, or what not, occur only under observation, and stay away for long periods when the patient is left to herself. Frequently the symptoms seem to be deliberately directed against a given person, and occur only in relation to him; they come on only when the husband is away from home, or only when he is at home, and altogether revolve about his movements and conduct. In some cases they have the appearance of a metaphorical sword held above the family's head; attacks come on as soon as the patient is disappointed or denied something, and cease as by magic the moment her request is granted. Many such patients completely tyrannize over a whole household; their lightest whim has to be obeyed, their likes and dislikes hearkened to, on penalty of an outburst of suffering, due, of course, to the unkindness, or worse, of the recalcitrant relative. This is the calculating patient, whose illness seems to be produced by pure wilfulness.

Very similar to the last is the patient whose symptoms form a close copy of someone else's; it may be someone they have heard of, seen, or read about in the newspaper. This is the imitating patient, whose illness seems to be a matter of simulation. It is in connection with this type that there is so much said about the hypersuggestibility of hysterics, but the important point is often overlooked that the copying of symptoms is never indiscriminate, and usually reveals a considerable degree of selection. The study as to which symptoms precisely are copied by a given patient leads one much farther into the nature of hysteria than the satisfaction displayed by such writers as Babinski in the use of the word hypersuggestibility.

Lastly may be mentioned the type of patient who actually does manufacture symptoms. Well-known instances are the various cutaneous lesions, from vesication to gangrene, the hemoptysis where the blood originates in the gums, the glycosuria where the sugar comes from the grocer, the deliberate or only half-accidental mutilations and accidents, and so on. This is the deceiving patient, whose illness seems to be a deliberate malingering.

None of these four attributes of perverseness, wilfulness, simulation, and malingering represents a justifiable conclusion, except as the grossest possible approximation to the truth; nevertheless the feature common to the types indicated is that of a manifest resistance against the idea of health, or, presented in its obverse form, a will to disease. Indeed, some writers, such as Kohnstamm,[1] go so far as to formulate the rather crude generalization that a "defective health conscience" is the specific characteristic of hysteria.

If the same matter is regarded from another point of view it becomes clear that in many cases of hysteria the patient achieves a certain gain from being ill (*Krankheitsgewinn*), which she would have to renounce in the event of recovery. This gain is by no means evident in all cases, but in most long-standing ones it becomes fairly manifest. The illness is used as an excuse to avoid all sorts of disagreeable duties and tasks, both household and social, various little allowances are made for the patient and favors granted that would not be with a healthy person, and life in general is artificially softened so as to make her sufferings more tolerable.

It must be definitely pointed out that the patient is much less aware of these advantages and gains that the illness brings her than might at first sight be supposed. This sounds strange, for they are often obvious enough to the observer, and it can only be accounted for by supposing that the patient shirks the realizing of them. As we shall see later, there are good grounds for believing this to be the case; it well explains, among other things, the resentment displayed by the patient when the state of affairs is pointed out to her, and the obvious reluctance with which she renounces her previous advantages. If the patient is only partially aware of the gains that accrue from her illness, she is still less so of the fact that these gains serve as motives to maintain the illness. And yet that this is frequently the case stands beyond all reasonable doubt; the conclusion is based on countless observations that admit of no other interpretation, and with the so-called *Rentenhysterie* that has followed on the German disablement acts it has been demonstrated almost statistically. In fact, one does not go far wrong in always inquiring into the empiric effects of an hysterical illness, and then in regarding these effects as causes or factors that have at least an adjuvant influence in maintaining the illness; whoever investigates this point of view for the first time will be astonished to find how true it is.

[1] Allg. Zeitschr. f. Psych., Band lxviii, series 522.

One has only to note carefully the reaction of an hysterical patient when it is suggested to her that the gains brought about by her illness are motives in maintaining it to convince one's self not only that they indignantly repudiate the suggestion, but also that they are not lying when they do so. The knowledge of the truth may, perhaps, be in their minds, but it cannot be said that they are aware of it; they do not want to be aware of it. There are certainly cases in which they are, but these constitute the minority. The following is an instance of this: A lady with very severe hysterical symptoms was sent to me for treatment. After a month, when she was already getting better in spite of the obstacles she put in the way, she very honestly said to me one day: "You are wasting your time and labor, doctor, for I can see plainly that I don't really want to get better; getting better would mean going back to live with my husband, and all that that brings with it." Her husband was a drunkard, who was repellent to her mentally, morally, and physically. I might add that continued treatment gradually overcame this repulsion, or at all events lessened it to an extent that made life quite bearable; she has been fairly happy now, and quite well, for over three years.

From this point of view we can understand one of the grounds of the patients' resistance to therapeutic efforts, and also why they are so loath to acknowledge this. Getting better signifies not merely the renouncement of a number of previously enjoyed advantages—never a proceeding very cordially entered on by any human being—but also making the disagreeable admission to one's self that the illness had been exploited for the sake of these advantages; at least, no form of treatment that does not involve this admission can afford any guarantee that the same factors will not automatically come into action again when the opportunity presents itself. A good physician is therefore necessarily a disturber of the peace, and is either openly or veiledly resisted as such.

A few words may be interpolated here on the importance of these considerations for the theory of hysteria, for the observations on which they are based, which can readily be verified in every-day practice, must be taken into account in any attempt to formulate such a theory. We see at once here a striking difference between the two views of hysteria that will be discussed later, and which may be termed the shock hypothesis and wish hypothesis respectively. It is difficult to reconcile the observations in question with the former of these views, which would trace the hysterical symptoms to the effects of various psychical traumata in past life, griefs, frights, accidents, etc.; the two matters do not seem to connect well together, and the hypothesis affords no adequate explanation of the observations. With the wish hypothesis, on the contrary, they are in the fullest harmony. According to this view *all* hysterical symptoms result from various personal wishes of the subject, they represent a peculiar mode of gratifying these, and they all bring a certain gain to the patient. In the instances quoted above this is easily to be perceived, the symptoms serving to

get the patient what she wants, *i. e.*, to gratify her personal wishes; but the wish hypothesis goes farther than these surface observations and maintains that careful investigation reveals behind every single symptom a desire acting as a motive, a desire that in some way is being gratified by the symptom. We noted above two characteristics of the wishes that are gratified by the patient's exploiting her illness: (1) that she is only imperfectly or even not at all aware of them, and (2) that she is very reluctant to acknowledge them to herself. These characteristics are much more pronounced in the case of the deeper and less obvious motives; here the patient is absolutely ignorant of their existence, *i. e.*, they are "unconscious," and displays a strong instinctive resistance to any procedure that threatens to unveil them.

The chief therapeutic corollary that follows from these considerations is that the physician, if he conscientiously desires to deal with the fundamental causes of the malady—in other words, if he desires to make the treatment radical and not merely palliative, must constantly be on the alert to discover the motives that have produced and are maintaining the condition. By in this way getting at a clearer appreciation of the patient's relation to her environment, he is better able not only to understand her reactions and to base the details of his advice on a sounder comprehension of their significance to her, but in many cases to effect adjustments in the environment of a kind accurately adapted to the individual needs of the case. His knowledge of the patient's resistances, and of the importance of them, will make him realize the necessity for the utmost tact wherever they may be concerned, but will make him none the less determined thoroughly to conquer them, or rather to help the patient conquer them. This is the inner meaning of the hackneyed expression "kind but firm" that is so much reiterated but so little heeded. The physician will also attach the greatest value to the opposing motives for the sake of which the patient desires to get better, and will cultivate them by every means in his power. These latter motives constitute his essential support in all the difficulties of the treatment, and without them no serious benefit can result from any therapeutic efforts.

Summary.—A short summary may now be given of the chief points developed in the present section. Attention has been called to the "inadequate emotional reaction" of hysterical patients, to the frequency with which they react to a situation in a manner or with an intensity different from that of the normal; situations, ideas, objects, persons, commonly possess an unusual and unintelligible significance peculiar to the individual patient. This transvaluation of their values has been traced to the unusual extent to which they are influenced by past situations that in some way resemble the actual one of the moment, the patient's reaction being as much toward the former (primary) situation as toward the latter (secondary) one. It was further pointed out that the stronger the emotion relating to the primary situation the less obvious need be the resemblance connecting any secondary one with it, the association between the two being often a forced or superficial

one. Put in other words, it may be said that this "displacement" of emotion from a past situation to a present one is a manifestation of the assimilative capacity of a strong "complex." Characteristic of hysterics, especially as distinguished from the normal, is the excessive extent to which they are influenced by past experiences, so that in severe cases they really seem to be still living in the past. We have remarked on the practical importance of the physician's realizing that the patient's inadequate reactions are only apparently such; they are, in fact, perfectly justified in both quality and quantity, and are quite intelligible when correlated with the past situations from which they are derived. Abnormal reactions have, therefore, to be regarded not as exaggerated, but empirically as psychologically true—though displaced in time and occasion.

In the next place, attention has been directed to the fact that various advantages accrue to the patient from her symptoms, and that these advantages often serve as motives in sustaining the malady; the effects may thus, in many cases, be regarded as causes. The patient is commonly unaware of the action of these motives, and resents any measure calculated to force them on her notice. It was further hinted that many more symptoms are due to unconscious motives, and serve to gratify unconscious wishes, than might at first sight appear. In every case of hysteria there exists, by the side of the manifest reasons for which the patient desires to get better, important counter-forces, usually unconscious, opposed to these, and therefore tending to thwart any therapeutic endeavor. Two of these forces were commented on, one being the patient's disinclination to renounce the gains resulting from her illness, the other being her aversion to acknowledging the way in which she has exploited her illness for egocentric purposes. This will to disease, when opposed to the therapeutic efforts of the physician, is termed "resistance," and to learn to understand and deal with the various resistances is one of his most delicate and yet most important tasks.

The essential outcome of the preceding discussion is the conclusion that success in the treatment of hysteria is closely to be correlated with the amount of trouble taken in investigating the past emotional experiences of the individual patient, this being indispensable for both the understanding and control of the morbid tendencies. Merely to prescribe rest, in the pious hope that the pathogenic agents will thereupon cease their activity, and that the patient will get better if only she is left alone and fed sufficiently, is as inadequate a therapeutic proceeding as it would be to do the same in a case of obscure abdominal disease with no investigation of the etiological factors; in both instances many cases may actually recover in this way, but in neither has the physician done what his duty demands.

Mental Measures.—Introduction.—There is undeniably a considerable body of prejudice still obtaining among the medical profession against any kind of mental therapeutics, and this in spite of the propagandism in the opposite direction during the last quarter of a century.

It arises from several sources. One of these is the prepossession against any measure that appears to give one human being an undue influence or control over another, and particularly that does so by interfering with the very personality of the latter (allied to the feeling about intruding on individual privacy that for a long while retarded the development of gynecology); this is no doubt connected with very fundamental attributes of mankind concerning the liberty of the individual and still deeper emotions. Emotional and irrational factors such as these affect conscious judgment to a greater extent than is sometimes recognized. Another source of prejudice is the evident truth that the early history of mental therapeutics is closely interwoven with that of non-medical healing in general, and of charlatanry in particular. When the practice of medicine was gradually emancipating itself from the hands of the priesthood, the process was not thorough-going enough to include mental therapeutics (then in the form of faith-healing, exorcism, and so on), and what part of this is not still retained by the somewhat intermittent efforts of the clergy has become the heritage of quacks to a greater extent than of physicians. Even now to many medical men the idea of mental therapeutics has a distinct savor of the non-rational, or actually mystical, and is not absolutely separated in their minds from that of imposture; they regard a cure induced in this way as a sort of cheat, a jesuitical achievement of a laudable aim by ignoble means.

It is evidently a matter of profound regret to some physicians that no adequate physical measures have been discovered to effect the same results as mental ones in the treatment of hysteria, and they use all their influence to dissuade others from what they are pleased to call "contamination with the unclean thing." Some, but by no means all, of this curious attitude arises from a bewilderment on a philosophical topic, the relation of body to mind, the complete irrelevance of this, at all events for the subject of practice, not being realized. Accustomed to regard all disease as essentially an affair of the body, they feel any attempt to influence it from the mental side to be a disturbing intrusion on a fit scheme of things. In reality the study and practice of mental therapeutics in no way involves one in any form of philosophy, good or bad; a psychotherapeutist may be a monist, a dualist, a philosopher of any brand or not one at all, and there are instances of each of this type among those most prominent in this work at the present day. The theory of mental therapeutics is based on two incontrovertible and every-day observations: (1) That occurrences of the kind called mental, such as grief, fear, and so on, are often followed by injurious occurrences of the kind called bodily disturbances; and (2) that these disturbances can be beneficially influenced by other mental states, such as happiness, hope, and so on, which can be induced by certain mental measures devised for the purpose. Anyone pursuing such a course may believe that all these mental states, both the pathogenic and the curative, are accompanied by physical changes in the brain, or even—in contradistinction to all modern philosophy and science—

that they are produced by these, but such beliefs, or the absence of them, has no necessary relation to the empiric procedure of healing the patient. One may or may not hold similar beliefs in connection with the matter of teaching a boy how to solve algebraical problems, but neither our uncertainty on the point nor our inability to instil such training by means of specific drugs, diet, or other physical measures has weighed heavily on our educators, or prevented them from adopting other means that achieve the desired result.

The modern study of psychopathology has especially set itself the task of restoring mental therapeutics to its original position as a branch of medical knowledge. Though this task has been attempted only in the last few years, mental therapeutics itself is a subject of extreme antiquity. It stretches back beyond the dawn of history, and is at least as old as the earliest form of religion. This is as true of civilized as of savage nations, for the Father of Medicine, Æsculapius, whose ophitic emblem is still our own, was above all a psychotherapeutist. This honorable descent, when now quickened by the touch of modern science, should augur an important and worthy future.

Sir William Osler, in his text-book of *Medicine*, writes: "To treat hysteria as a physical disorder is radically wrong. It is essentially a mental and emotional anomaly, and the important element in the treatment is moral control." It is instructive, as illustrating the current medical attitude on the subject, to find that, even after making this clear pronouncement, he actually mentions no form of mental therapeutics except hypnotism, and this only to warn against the use of it. It is indeed quite common for the terms "psychotherapy" and "hypnotism" to be regarded as synonymous, or even identical, and many books bearing the former title treat only of the subject of the latter.

In reality, there is a great variety of psychotherapeutic modes of treatment, some of which have relatively little in common. As it would be impossible, as well as unnecessary, to describe them all here, an attempt will be made to classify them into a few main groups, and in this way to indicate the principles underlying the different forms. It would seem possible, by means of a unitary criterion, to graduate the various forms in a fairly even scale; the criterion in question, which for the sake of brevity may be referred to as the "activity" one, is the *extent to which the patient is made actively to produce changes in his mental processes*. Without doubt an endeavor in this direction is made in all forms of mental therapeutics, but it is certainly more pronounced in some than in others. The reasons why this particular criterion is made the basis for classification will presently become more evident. One important one is that the main progress effected in the whole subject during the last twenty years consists in the gradually increasing stress laid on the principle indicated. Originally the chief therapeutic factor relied on was what may broadly be called the personal relation between the physician and the patient, commonly referred to as the personal influence of the physician; although this factor can from

the nature of things never be altogether eliminated, progress in mental therapeutics as a science has largely consisted in replacing it so far as possible by the other factor mentioned above, and in one form of treatment, the psycho-analytic, a serious endeavor is made to reduce the more personal factor to a minimum.

The three main groups that comprise our classification are those of suggestion, reassociation, and psycho-analysis respectively. Some cavilling may be expected concerning the subgroups that will be introduced under the main ones, it being, perhaps, thought that some of them deserve a more prominent and independent status, but the writer can only say that he has substantial reasons for the course here adopted.

Suggestion.—Suggestion is not only of peculiar antiquity, being probably the oldest form of any kind of therapeutics, but it is perhaps the most widely used one at the present day, entering as it does to a greater or less extent into every medical relation with a patient. One often reads that every doctor unconsciously uses suggestion, and from this the curious inference is sometimes drawn that the whole of mental therapeutics is no novelty, and that the medical profession has nothing to learn in this field; this is about as quaint as if in 1890 it had been said that since smallpox had long been known to be contagious the medical profession had nothing to learn from the new science of bacteriology.

HYPNOTISM.—We may appropriately begin with the subject of hypnotism, the most striking form of treatment by suggestion, and the one in which the personal influence of the physician plays the greatest part. The term "hypnotism," coined in 1843 by Braid, who probably contributed more to our general knowledge of the subject than any other single man, has now quite displaced those of "animal magnetism" and "mesmerism," of which it is the lineal descendant.

Numerous failures have shown that it is extraordinarily difficult to define what the actual state of hypnosis consists in, and this for two reasons: On the one hand, the individual manifestations occur with the greatest irregularity, so that there is no constant group that one can seize on as essential, while on the other hand there is an imperceptible gradation between the deepest stage of hypnosis and normal waking life. These and other circumstances have led some observers, notably Babinski, to deny the reality of hypnosis altogether as a distinct mental state, a conclusion, however, in which few acquainted with the facts will acquiesce.

It is undoubtedly in many cases a difficult question, and often a purely conventional one, to tell whether a given person is hypnotized or not, and at what moment this can truly be said of him. When, however, a number of the most characteristic manifestations are present it is easy to say that the patient is in a different mental state from his normal one, when for instance he can recall forgotten memories in a way impossible in his waking state, when his limbs are in a condition of catalepsy, and his sensibility to cutaneous stimuli quite abolished,

and when he reacts to external suggestions in a manner quite foreign to his normal behavior; as a rule, this deep "somnambulic" stage is followed by amnesia for all that has occurred during the séance, and brings with it the capacity to develop the process known as posthypnotic suggestion. It is not necessary here to detail all the phenomena of hypnosis, but attention must be directed to the following matters that have special therapeutic bearings: (1) To the heightened suggestibility, which is perhaps the best-known feature of the condition. (2) To the widening of the memory field that frequently occurs. (3) To the circumstance that verbal suggestions can produce, not only mental effects, not only effects on bodily processes that are under control of the will (limb movements, etc.), but also effects on bodily processes that are entirely out of control of deliberate volition; for instance, changes in various secretions, mammary, renal, salivary, and lacrymal, in the peristaltic activity of the intestines, in the menstrual function, and in various cutaneous and vasomotor processes. (4) To the peculiar *rapport* that exists between the physician and patient. This is present to some extent in all cases, being probably the most constant feature. When at its acme so intense is the preoccupation of the patient with the thought of the physician that he is in contact with the outer world only through him; he quite ignores any stimulus, even painful ones, emanating from any other person.

Method.—The methods employed for the induction of hypnosis are very numerous, but they have certain features common to them all. In the past various physical agents and apparatus, from Mesmer's *baquet* to Luy's revolving mirror, were made use of, and even at the present day some physicians have their patients listen to the sound of a metronome or stare at some bright object. It is, however, well established that none of these procedures is necessary, and it is doubtful if they are ever of much assistance, except perhaps to give greater confidence to the physician. Certain preliminary conditions are desirable, and often essential. The patient's previous mental state is important. Every effort should be made to give him confidence, and if possible belief, to induce in him a state of mental calm, and to allay any fear or dread that may be present. For these reasons it is advisable to give beforehand some simple description and explanation of the procedure; but this should be short, not too complicated, and given in a quiet reassuring tone. Anything that tends to induce a peaceful frame of mind is a useful adjunct: for instance, a room free from any disturbing noise, absence of bright light, complete bodily comfort. Sensory stimulation is resorted to by many authorities, the features aimed at being those inducing monotony and fatigue. The former may be compassed by rhythmic stroking of the skin, of either the hand or brow, or by setting going a metronome. Sensory fatigue may be brought about by getting the patient to fix his gaze for some time on any object, preferably a bright one, which is best placed above the level of horizontal vision. All these, however, are only accessory measures. The essential procedure consists in leading the patient to relax, both

physically and mentally. This is usually done through direct suggestion on the part of the physician, whether in the form of a command, a hint, or a prediction. The patient should renounce activity of thought, and avoid the slightest sense of effort, such as the pursuing of a given train of ideas. His attitude is that of a peaceful passivity, an abstraction, a total relaxation of all strain or effort; he enters into a state of *dolce far niente*. When the patient has attained the desired stage the physician proceeds to exhibit the specific suggestions relating to the symptoms. This may be done in the form of a peremptory order, of a gentle persuasion, a personal appeal, and so on, varying according to the type of patient and the custom of the physician. The suggestion may be directed immediately against the particular symptoms, or the subject may be approached quite indirectly; this should vary with the critical tendencies of the patient and the kind of symptom. In all cases it is desirable to repeat the suggestion many times over, preferably in different words. The essence of the whole treatment is that the force of suggestion is directed against that producing the symptom; the nature of these forces will be discussed later.

Therapeutic Results.—The therapeutic results of hypnotic suggestion are undoubtedly in many cases very gratifying, and there is no question that the potency of it has been considerably underestimated by those who are either not familiar with the facts or unskilled in the method. It succeeds much better with some neurotic conditions than with others, best of all with hysteria. To see a patient with an hysterical paralysis of years' standing enabled to use the limb through a single hypnotic treatment is an experience which is difficult to parallel without going beyond the bounds of medicine to those of faith-cures, and which makes the description of such places as Lourdes quite intelligible. This sensational brilliancy, however, constitutes only one aspect of hypnotism, and there are others by no means so satisfactory. As is well known, a series of objections have been urged against the method, and for these and other reasons it has not been generally accepted by the medical profession, the percentage of which that makes use of it being extremely small in all countries. Many of the objections are not justified by the evidence; still the prejudice against the method does not all arise from mere meaningless conservatism (it will be remembered that it has vainly struggled for medical recognition for well over a hundred years), but is more solidly founded than many of the superficial pretexts urged by those sharing it might lead one to suppose. However, it will be well to postpone discussion of the subject until it can be taken up together with that of suggestion in general.

It is important to call attention to the fact that the induction of hypnosis may serve other therapeutic functions than that concerning the administration of verbal suggestions, and this applies equally to the subvarieties of hypnosis. In the first place, it can be said that the mere induction of the state is of itself in many cases of considerable therapeutic value. Not only may the patient's general sense of well-

being be greatly heightened, though as a rule this effect is a transitory one, but also various symptoms may disappear. Sometimes no doubt this is due to definite suggestions unconsciously given, or expectations aroused by the physician; but there is good reason to believe that it may occur quite independently of these. In the second place hypnosis may be induced purely for the purpose of exploring forgotten memories that are inaccessible in the waking state, and which it may be desirable to recall.

It was mentioned above that the state of hypnosis differs only in degree from the waking state, and that a series of poorly marked stages can be distinguished. To divide these stages into a definite number is quite artificial and conventional, as indeed is shown by the circumstance that very few authors agree on the same division; thus Delboeuf, Gurney, and Dessoir mention two, different in each instance; Forel and Charcot give three, also different one from the other; Liébault six and Bernheim nine. Such divisions may be convenient for illustrating a given point, but they are obviously of no general value. All of these stages, or subvarieties of hypnosis, also occur spontaneously in hysteria and perhaps in other maladies as well. One example may be taken to illustrate points that apply equally to other members of the main group. In 1893 Breuer and Freud gave the name of "hypnoid states" to certain important manifestations of hysteria, calling attention at the same time to the resemblance between them and the lighter grades of hypnosis. Binswanger[1] compares them with the subvariety named by Forel (1891), *Hypotaxie;* the comparison is equally evident between them and the subhypnotic states called cataplexie (Preyer, 1878), *état de fascination* (Brémaud, 1884), *léthargie lucide* (de la Tourette, 1889), and particularly with the *état de charme* described by many of the older writers. Several of these varieties have been represented as constituting specific mental states, with particular therapeutic possibilities, and have been exploited as such. A few years ago Sidis described, apparently independently, a method for inducing the hypnoid condition, giving it the name of "hypnoidization." It is defined as consisting in the production of a "state of abstraction, of mental composure and relaxation," *i. e.*, the features mentioned above as indispensable to every form of hypnotic procedure; the details used in the method are also familiar to every hypnotist. Like the other writers, Sidis assigns a high theoretic importance to the "hypnoidal state" (*i. e.*, a hypnoid condition produced not by hysteria, but artificially), and also asserts that it possesses a special therapeutic potency. It should not be necessary to have to refute these contentions, although they seem to have imposed on some physicians unfamiliar with the wider aspects of the subject. It is sufficient to remark that none of these hypnotic subvarieties has any pretension to specificity, that no feature distinguishing one variety from another is of any general importance, and that none of them possesses any quality of either

[1] Die Hysterie, S. 316.

theoretic or therapeutic bearing that may not be found both in typica hypnosis and in the waking state.

SUGGESTION IN THE WAKING STATE.—We pass now to the subject of suggestion in the waking state, a mode of treatment more widely accepted and more commonly employed than hypnotic suggestion. Soon after the scientific investigation of the phenomena of the latter was undertaken it was discovered that in suitable cases, particularly in hysteria, they could all be produced in the waking state, and what was of more practical importance, that the same therapeutic results could be achieved in this state. So far as therapeutic suggestion is concerned, it seems to be irrelevant, or at all events, unimportant, whether the sleep-like manifestations of hypnosis are present or not. It is known that many, if not all, of these are due to the conventional suggestions in this direction that are given when inducing the condition. Dessoir pointed out, for instance, that the closing of the eyes in hypnosis is usually due to this type of suggestion, and that if it is avoided the deepest hypnosis may be induced with the patient's eyes open throughout; I have repeatedly noticed this myself, as no doubt have other observers. This circumstance renders it even harder than was previously thought to distinguish between hypnotic suggestion and other kinds.

In employing simple suggestion in the waking state, all that is necessary is to insure that the patient is in a condition of repose and mental calm, that he has replaced the normal mental activity of pursuing and attending to various trains of thought by a state of abstraction, and then to utter appropriate suggestions concerning the symptoms in just the same way as in the case of hypnotism. The chief difference is that the physician omits the preliminary suggestions designed to induce a state of hypnosis. In both cases it is essential that he should impress the patient as having a complete confidence in himself, and an unquestioned belief in the efficacy of the statements he makes.

Comparison of the therapeutic results obtained by waking and hypnotic suggestion is not easy, a remark which holds good of any two forms of mental therapeutics. *A priori* one would imagine that, since heightened suggestibility is such a prominent characteristic of the hypnotic state, the susceptibility of the patient to therapeutic suggestion must be greater here and the benefit received more marked. Comparative experience, however, does not seem to bear this out, or at least certainly not to the extent that might have been anticipated; the explanation of this probably lies in the consideration mentioned above—namely, that the accessory, sleep-like manifestations that characterize hypnosis are non-essential. The majority of those accustomed to use both methods do not consider that hypnotic suggestion presents any noticeable advantages over that given in the waking state. The workers who placed the whole treatment by suggestion on a firm basis—namely, the Nancy school, with Liébault and Bernheim at their head—have for years consistently maintained this conclusion. Forel, a strong advocate of hypnotism, holds that there is absolutely

no difference, from either a theoretical or a practical point of view, between hypnotism and suggestion. It is further significant that a number of authorities who formerly employed hypnotism, such as Milne Bramwell, Van Renterghem, and others, have practically renounced this in favor of simple suggestion, that is to say, they proceed to the giving of therapeutic suggestions at the beginning of the séance without waiting for any effect of suggestions designed to induce hypnosis, or even without giving any of the latter kind of suggestions. From the numerous results published the conclusion may be drawn that the hypnotic state is, at all events, far from being indispensable in the obtaining of therapeutic results.

SUGGESTION IN THE SLEEPING STATE.—Finally mention may be made of suggestion in the sleeping state. Several workers have shown, Wetterstand in particular, that it is often possible to enter into mental *rapport* with a sleeping patient, and thus to lead him directly from the state of sleep into that of hypnosis, no intermediary waking stage being necessary. Therapeutic suggestion during sleep has chiefly been used in cases where the patient is obdurate against any form of treatment, for instance, with alcoholics who refuse to consult a doctor. The results obtained in this way have been inconstant, and the obvious practical inexpediency of the method need not be pointed out.

Up to the present we have considered only the methods in which suggestion avowedly plays the most prominent part, and where the deliberate giving of therapeutic suggestions is the chief aim of the treatment. It has long been recognized, however, that even when this is not the case, and even when such suggestions are to a great extent refrained from, suggestion in the sense of the personal influence of the physician plays a very important part. In some forms of treatment the other effects are of so little consequence in comparison with this influence that it is appropriate to consider them in the present section.

PERSUASION.—A typical example of these forms of treatment is that by persuasion. Babinski attempts to divide verbal suggestions into those that are unreasonable and potentially harmful, and those that are reasonable and beneficial. He reserves the term suggestion for the former and persuasion for the latter; treatment by means of persuasion he calls "pithiatism." There is plainly no psychological difference between the two processes, for it is obviously a matter of convention or of external and irrelevant circumstances whether a given suggestion is to be considered reasonable or not. Nevertheless, we see here the germ of a new principle differing from those underlying the simple treatment by suggestion described above. This resides essentially in a greater stress being laid on stimulating the patient to take an active share in modifying his mental state, their reaction to the treatment being less of an automatic response to the physician's efforts than in the case of pure suggestion. In other words, there is here the beginning of the aim that was taken above as the criterion on which to base the classification of psychotherapeutic methods. The physician

tries to "appeal to the patient's reason," and to enlist on his side the mental process known as reasoning.

This form of treatment has been developed and expounded in more detail by Dubois, and through his indefatigable advocacy of it and his unrestrained enthusiasm, it has become closely associated with his name. The belief on which treatment by persuasion is based is that the patient himself has the power beneficially to modify his pathogenic mental processes, provided that he has the help of a physician to explain what is needed and to direct his endeavors. It will be shown later that this principle is of the highest importance, but it by no means follows that every system of treatment that invokes it is capable of applying it, and this failure is particularly evident in the case of the persuasion treatment.

The application of the principle plainly presupposes both a knowledge of what the pathogenic processes that have to be altered really are, and also some understanding of the circumstances of their origin and the conditions of their pathogenicity; without such knowledge one would be only working in the dark. Now the persuasion treatment, as described by all its advocates, is very far indeed from satisfying this presupposition. The symptom in question is taken very much at its face value, and any inquiry that may be made into the pathological significance and origin of it is altogether inadequate. Indeed, in many cases the "explanation" given to the patient merely consists of a series of truisms, or even banal platitudes, such as when a patient afflicted with a morbid fear of open spaces (agoraphobia) is told that open spaces are safe to cross and that there is really no need for him to be afraid. It is quite comprehensible that a physician who takes such a superficial view of the problem should come, as Dubois has, to regard neurotic symptoms as manifestations of a pitiful intellectual weakness and lack of logical capacity.

The defects of the persuasion treatment are mainly two. In the first place an exaggerated value is attached to the therapeutic potentialities of reasoning processes, to the neglect of the more important affective processes. The problem is essentially not an intellectual or logical one, it is an emotional one, and there is a decided limit to what can be accomplished by reason and cold logic alone. In the second place, it is assumed that the aberrant mental processes that have to be corrected are conscious ones, a fundamental error, for though the actual symptoms are, of course, conscious, these are only the surface manifestations of deeper psychopathological processes of which the patient is entirely unaware. Without any knowledge at all of the nature of these primary disturbances one is naturally powerless to affect them one way or the other, and all that can be done by surface methods is sometimes to shift and vary the external manifestations. Whenever any beneficial result is achieved by means of the persuasion method, there is no doubt that the main part of it is due to the suggestive influence of the physician, so that the method may be regarded as an unimportant subvariety of the group now under consideration. The

appearance of the method and the interest aroused by it, however, are facts of general significance as indicating a dissatisfaction with what is felt to be the unreasoning blindness of treatment by suggestion, and a desire to found mental therapeutics on a more rational basis. Though this laudable tendency has proved unfruitful in the simplistic persuasion methods, it will later be shown that it has given an impetus to more serious studies of the nature of the problems concerned, with the result that forms of treatment have been devised dealing more radically with the pathogenic processes.

"SIDE-TRACKING."—Another method may now be referred to that differs more widely from that of pure suggestion than the preceding one; to it has been applied the name of "side-tracking." It has been developed and elaborated most fully by Putnam, with his assistants Taylor and Waterman. The principal aim of the method is to divert the patient's attention so far as possible away from his symptoms, and to stimulate his interest in healthy activities. Many institutions, such as the valuable Social Service Department of the Massachusetts General Hospital and various private sanatoriums, also do much to provide external opportunities for the development of such activities.

Like the last method, this one is far from being radical, but in certain cases where the spontaneous efforts toward recovery are sufficiently strong, satisfactory results may be obtained. In point of fact, it follows on precisely the same lines as these spontaneous efforts. When recovery takes place in hysteria apart from treatment, it is always through the forces that had been making for illness having become diverted into other, healthy paths. It will be shown later that this statement is more accurate than the customary one to the effect that these forces become replaced by other tendencies of a more normal kind. The pathogenic force is diverted, not replaced; it is the same force that is operative in the case now of the symptoms, now of the healthy activities. The principle of this mode of treatment is thus perfectly sound; the imperfection of it is that in so many cases the tendency of the pathogenic forces to act in the old way is fixed by certain factors with which the treatment does not deal. As a supplement, therefore, to more radical modes of treatment it has considerable value, but it gives satisfactory results in only a relatively small number of cases, and these of the milder variety. Putnam himself has felt this, and now practises one of the more elaborate methods—that known as psycho-analysis—using the "side-tracking" one as an accessory help according to circumstances. The method has been included in the present group on the grounds that the criterion of getting the patient himself to modify the pathogenic agents is not at all prominent, and that the beneficial effect is largely produced through the natural tendency to recovery being aided by the encouragement and personal influence of the physician.

GENERAL CRITICISM OF THE SUGGESTION TREATMENT.—A given method must be judged both by the empiric results it achieves and by its compatibility with the principles of treatment indicated by our

knowledge of the disease. If the excellence of the results surpasses what consideration of these principles would lead us to expect, then they are probably imperfect; this, however, cannot be said about the results of the treatment of hysteria by suggestion. As was mentioned above, the immediate results are sometimes exceedingly brilliant, and it is only natural that these should be vaunted by the advocates of the method. In many cases, moreover, the beneficial effect of the treatment is a permanent one. Nevertheless, it is unquestionably true that a considerable proportion of cases where it was thought that a complete cure had been achieved relapse later, and may need repeated courses of treatment. This plainly would be no objection against the method if there were no better ones in the field, but the unsatisfactoriness of treatment by suggestion is that the possibility of relapse is a defect inherent in the method, and one never to be excluded. This is true of any form of treatment in which the actual morbid agent is left untouched, a criticism that strikingly applies to the method in question. The principle established in our discussion of the general management of hysteria—namely, the cardinal importance of properly investigating the details of the patient's inner mental life, is here absolutely contravened. Apart from the unfortunate possible consequences of this that were pointed out before in that connection, the result is that the physician is in the dark as to what is going on in the patient's mind. He can never be sure whether or no any given case will prove to be one of the fortunate ones that do not relapse; he can hope that it will, but he can afford not the slightest guarantee on the point. Even if all his therapeutic endeavors are successful, he can know absolutely nothing about the various buried and latent tendencies to the production of symptoms that have never yet appeared, but which may, and often do, as soon as the manifest symptoms have been removed. From the nature of things he can deal only with those symptoms that are in evidence, or have been so in the past; he cannot foretell the type of symptom likely to be produced in the future, and therefore he can do nothing to anticipate or prevent it. If, finally, there are alternative methods of treatment that investigate and deal with the actual pathogenic agents, that treat the disease and not the symptoms, and that can prevent both the recurrence of the old symptoms and the fresh production of new ones, then obviously they must be regarded as more satisfactory than treatment by suggestion.

On the other side, it must be said that many of the objections that have been urged against the present group of methods, most strongly against hypnotism, are based on very insufficient grounds. It is often said, for instance, that the treatment sometimes lasts unduly long and consumes an unreasonable amount of time; it may even take a hundred séances before hypnosis can be induced, a remark which, it is true, does not apply in the case of ordinary suggestion. Individual judgment in this matter will evidently vary according to the view held as to the severity and importance of hysterical suffering, also as to the prognosis of such cases, and the ease or difficulty of treating them. There are

cases that anyone might well be proud of having cured within five years, and there are cases which must be regarded as incurable even in this time. It is further said that such measures open the possibility for influence of a criminal kind being exerted on the patient. This consideration is, perhaps, a good argument in favor of State prevention of the use of hypnotism except in the hands of a medical practitioner, but it is no more applicable in the case of the medical profession than similar accusations of misuse in regard to chloroform, potent drugs, scalpels, and other constituents of the therapeutic armamentarium. The charge that repeated séances of suggestion are apt to produce in the patient an unfortunate dependence on the physician has more truth in it than the other ones brought forward, and were there no other methods of treatment that are free from this disadvantage it might be a nice question whether it outweighed the good done or not.

If we turn to the theory of suggestion in its bearing on therapeutics we find a full confirmation and explanation of the conclusions just reached. It is impossible adequately to discuss this subject here, and reference may be made to an essay on it by the writer, mentioned in the bibliography. It is necessary, however, to say something about it at this stage, and the remarks made will be amplified later when we come to consider more complex forms of treatment.

Bleuler, Lipps, and others have shown that the effect of "verbal suggestion," *i. e.*, of the conveyance of a given idea to the patient's mind, is due to an emotional process ("affective suggestion"), to the evoking of an affective state by the personal influence of the physician. Much light is thrown on the nature of suggestion by regarding it not as a peculiar mental phenomenon having no resemblance to any other, but as merely a special variety of more general tendencies of hysterics, and, to a less extent, of normal people. From this point of view it will be seen that affective suggestion, which is the basis of therapeutic suggestion, is simply one manifestation of a more general mechanism called by Freud "transference," that this in turn is a particular variety of one that Ferenczi has recently termed "introjection," and that this finally is a characteristic type of the "affective displacement," the excessive activity of which is so typical of hysteria. The ideas connoted by these terms are already familiar to the reader from our earlier discussion of them, and it will suffice briefly to recall them to his attention. It was there pointed out that what is called the inadequate emotional reaction of hysterics, such as the excessive feeling they may show on apparently trivial occasions, is really due to their having "displaced" a quantity of affect from one important idea (primary situation) on to another less important one that in some way resembles the first, and so (unconsciously) reminds the patient of it; the example chosen above was that of the child who dreaded all doctors' visits because he had been hurt on the occasion of one of them. Introjection, a form of this, denotes the tendency of the patient, particularly marked in hysteria, to incorporate the environment into his

own personality, to "take things personally," and thus to widen his own ego. Such a patient, at seeing a singer or reciter falter, experiences agonies of embarrassment himself; he unconsciously identifies himself with the person on the stage, who thus in his imagination becomes a part of him, and he feels for him just as though it were himself. This is the explanation of the well-known sensitiveness of neurotic people. The most interesting introjective manifestations are those relating to the persons of the environment, as in the instance just given. The patient transfers to them various affects, love, hate, and so on, born within himself, and which arose, perhaps years before, in connection with quite other people; he lives over again the same emotion in the presence of a person who in some way resembles one formerly associated with this.

The term "transference" is applied to this process on the occasions when it happens in relation to the physician. It was pointed out above that the changeability and capriciousness so often shown by the patient in this respect is due to the idea of the physician being identified in his mind with that of various other people in relation to whom the affects in question, which are still living, had arisen; something in the physician's behavior or appearance unconsciously reminds the patient of some previous person of psychical significance to him, and he reacts toward him as if he really were this person. As is well-known, the affects thus exhibited may be of all possible kinds, dread, jealousy, affection, hate, and so on; "affective suggestion" is the state of rapport between the patient and physician when the affects transferred by the former are of a positive kind, sympathy, liking, friendship, attraction, or even love. The essential basis for the successful working of any suggestion is this rapport between the two individuals concerned, produced by the transference on the part of the one person of various positive affects.

The way in which treatment of hysteria by suggestion brings about the results it does can be properly understood only when it is realized that the underlying causes of the malady relate to various disturbances —erroneous development, etc.—of the same positive affective processes that are operative in establishing the rapport by means of which suggestion is possible. In hysteria these affects are being manifested in the form of symptoms. In the treatment they are, as it were, withdrawn from this mode of manifestation and satisfied by preoccupation with the idea of the physician and the feeling of attraction toward him. This explains the familiar observation that patients treated in this way are apt to become unduly dependent on the physician. Some remain well when the treatment ceases, but many experience later a renewed need either for another course of the same treatment, or else for some similar situation in which a gratifying affective rapport is possible; the last remark explains why it is that many patients feel better whenever a sympathetic person takes a deep interest in them, or when they fall in love.

These considerations also make it plain why treatment by suggestion

succeeds so much better in some cases than in others, and why the beneficial effect is more durable with some than with others. The symptoms that provide only a partial and unsatisfactory outlet for the pent-up positive affects are usually the recent, temporary, or changing ones, the ones most easily "cured," the more durable and constant symptoms, which are notoriously harder to remove, are proving more adequate outlets for the pathogenic affects in question. In the successful cases it has been possible to withdraw the affects from the channels in which they had been flowing, and to attach them to the more suitable idea of the physician's person; when there has been no success at all this idea has not proved strong enough to attract the positive affects, *i. e.*, the patient finds the physician "unsympathetic," and, as a rule, soon leaves him. Where there has been moderate or only temporary success the idea has been sufficiently attractive to withdraw for a time the affects from their old channels, but when the rapport is no longer sustained by constant intercourse and mutual interest between the two persons, the counter attraction of the old routes proves too strong, and the patient relapses into his previous condition. Suggestion is thus the interposing of a competitive force, and the outcome depends on the relative strength of this new force and the old tendency toward the production of symptoms. Permanent success by means of such treatment signifies that, after the pathogenic affects have been withdrawn from the old channels, the patient has been able to divert them from the idea of the physician and apply them to other social or personal interests, *i. e.*, to achieve the aim of the "side-tracking" method.

CONCLUSIONS.—In conclusion it may be said that both practical and theoretical considerations support the same judgment—namely, that the great disadvantage of any treatment by means of suggestion is the blind nature of it. It achieves its results by substituting the idea of the physician for the previous expressions of the pathogenic affects. Psychologically this signifies merely the replacement of one symptom by another, abnormal dependence on the physician. In favorable cases this is sufficient to enable the patient to divert the morbid tendencies into healthier directions, thoughts about the physician serving as a half-way stage between the original attachment of the affects in symptoms and the desired one in social activities. It is never possible, however, to predict which patients will be able to accomplish this and which not, because the etiological complexes have never been dealt with, and therefore never resolved. The underlying tendencies are just the same after the treatment as before, so that it is largely a matter of "chance" (*i. e.*, of the strength of these tendencies, together with external circumstances) whether the patient will remain well or not. It is only when these have been freed from the complexes containing them that they can surely be diverted into useful channels. Other methods presently to be described aim at altering these underlying tendencies by giving the patient a direct personal control over them, by setting free the energy that certain factors have retained in these

morbid directions, and by rendering the patient completely independent of the physician and immediately responsible for his own fate.

Reassociation.—The principle underlying this method of treatment is the modifying of the pathological tendencies by linking up the mental processes composing them with others that experience has shown to be beneficial. The hypothesis on which it is based is, broadly put, that hysterical symptoms are due to the action of psychical traumata, such as shock, fright, grief, etc., on a sensitive organism, and that the effect of these traumata needs to be removed by linking up the memory of them with less disagreeable emotions. Those who employ the method are all men who have made detailed studies into the nature and development of hysterical symptoms, and they all agree in establishing the following feature, among others, in respect to them; that all such symptoms are based on amnesias, *i. e.*, that behind the symptoms, and operative in the production of them, are various mental processes that have been forgotten by the patient. This introduces another point of view, and makes the task of modifying the pathological tendencies a less simple matter than it at first seemed, for obviously it would be unsatisfactory to confine one's self to the superficial manifestations, to the end products of the pathogenic process, and leave untouched the primary tendencies. So much stress do these writers lay on the matter of amnesia that most of them describe hysteria as essentially consisting in a dissociation, or disaggregation of mental processes, a sort of multiple personality in miniature, and regard the cure of it as a synthetizing of these disaggregated foci. One form of treatment in the present group is actually called "psychosynthesis."

This discovery, first made in 1878 in connection with certain anesthesias, puts a different aspect on the problem. It would seem that if hysterical symptoms are dependent on the splitting-off from consciousness of various buried mental processes, the essential and most important step of any radical treatment should consist in resuscitating the forgotten memories, in fusing the dissociated mental processes with conscious ones. Curiously enough, none of the writers now under discussion draw this apparently obvious conclusion, or at all events, only with considerable modification. They hold in general that this resuscitation is frequently desirable, but by no means always necessary, and never sufficient in itself. We shall see later that another group of workers adhere to the conclusion in its original form—namely, that all efforts should be concentrated on achieving satisfactory fusion of the dissociated mental elements, and that there are definite reasons why those of the present group, who acknowledge the importance of the dissociation principle, have failed to draw the logical inference.

REËDUCATION.—There are some differences in the actual methods used by the individual members of this group, so that it is expedient to say something about each in turn. It will be understood that no one of them confines himself to a particular procedure, the methods of treatment naturally varying according to the case. We may begin with the earliest worker, Pierre Janet. Janet carefully traces out the

life history of the symptoms in question, especially noting any traumatic emotional experiences that stand in connection with it. To do this he chiefly relies on exploration during hypnosis, in which state, as was remarked above, the field of memory is commonly wider than in the waking state. He also makes use of other methods for the same purpose, particularly those that have been devised for the investigation of subconscious mental processes. Examples of these are automatic writing and crystal-gazing. In the former the patient's attention is distracted, for instance by conversation, while his right hand, into which a pencil is slipped, rests on a planchette. In suitable cases, and under favorable circumstances, the hand will proceed to write either connected or disconnected phrases without the patient's being aware of what he is doing. In the second example the patient, who must be in a state of relaxation and calm, is told to gaze steadily into a clear crystal, or indeed, at any shining surface, when mental pictures may appear, projected onto the surface gazed at. In both cases memories may be obtained, often in a distorted form, that were inaccessible to the patient's consciousness. Janet does not hesitate to employ verbal suggestion, to the limit of its capacity; in this way he attempts to diminish the intensity of the various emotions revealed by the investigation, thus endeavoring to counteract the harmful influence of these. Perhaps his most characteristic procedure is that termed the method of *substitution*. On finding a given idea associated with an emotion in such a way as to be producing morbid effects, he dissects the complex of mental processes, replacing one or more components of them by a fresh idea or emotion, and thus changing the old associations. For instance, if the unpleasant memory discovered was that of a corpse that had greatly frightened the patient in youth, he might attempt to invest the memory-complex with agreeable emotions and ideas, the sight and odor of flowers, the sound of pleasant music, and so on. Gross substitutions of the kind instanced are, of course, most effectively carried out by means of powerful hypnotic suggestions.

Morton Prince proceeds along similar lines, with relatively unimportant deviations so far as principle is concerned. The chief difference between his methods and those of Janet resembles that between persuasion and suggestion, in that he relies less on the grosser forms of substitution and appeals more to the patient's reasoning powers; in a word, he treats him more as a rational being than Janet does. From this aspect his methods must be recognized as constituting a distinct advance on Janet's. The means of investigation he employs are, with certain amplifications, similar to those of Janet. Having discovered and defined the pathological processes, with the psychical traumata of the past, he exerts himself to explain the significance of them to the patient, to introduce new points of view into the mental processes in question, to present different aspects of them, to invest them with fresh emotions and ideas, to stimulate the patient's general interests, and, generally speaking, to broaden his mental outlook. Prince was the first to use the term "reëducation" in this connection, in 1891.

There is not a single subvariety of mental therapeutics to which the term has not since been applied, so that it has had to be discarded from the psychotherapeutic vocabulary.

CAUSAL ANALYSIS.—Oskar Vogt described, in 1899, a method to which he gave the confident name of causal analysis. It consists in a systematic introspection carried out during a state of narrowed consciousness (subhypnosis), and can be performed only by persons who have previously been trained in accurate self-observation. The method was devised for the scientific investigation of etiological problems rather than for therapeutic purposes, and Vogt considers it applicable for the latter in only a very small number of cases. He would restrict the use of it to carefully selected cases, and even then only after every other therapeutic measure has failed. In general he holds that a detailed investigation of the patient's mental processes is unnecessary except in rare instances, and confines himself to simple methods of treatment such as those described in the preceding section.

HYPNOIDIZATION.—Boris Sidis lays great emphasis on the value of hypnoidization, a procedure that was considered above. When this state has been induced the patient has to mention all the thoughts and memories that occur to his mind, just as had been recommended at an earlier date by Breuer and Freud. He maintains that the beneficial results obtained in this way are due to pathogenic dissociation being remedied by the uprush from the subconscious of potential energy, which automatically brings about a fusion or synthesis of previously dissociated elements; the hypnoidal state is supposed to favor this uprush.

PSYCHOSYNTHESIS.—Bezzola has given the name of psychosynthesis to a form of treatment that is practically identical with the cathartic method devised by Breuer and Freud, and which the latter subsequently expanded into the modern psycho-analytic one. Beyond the change of name, and the determination to abide by the imperfections and crudities of the earlier method, there is no original contribution of Bezzola's to be noted. Frank de Montet and a few others have joined him in adhering to the cathartic method, though they prefer to use the term psycho-analysis.

GENERAL CRITICISM OF THE REASSOCIATION TREATMENT.—In the first place, it is to be noted that this system of treatment represents a decided progress in comparison with that discussed in the preceding section, for, in contradistinction to this, it sets itself the difficult task of dealing with the pathogenic factors rather than with the end-products alone. In addition to this we find our "activity" criterion much more pronounced here than there. The aims of this system are, therefore, both more ambitious and more satisfactory than those of the other, for it deals more radically with the disease process. Although it is not an easy matter to judge, it seems probable that from the practical side also the results achieved surpass those obtained by means of suggestion alone, especially in durability.

In attempting to formulate a complete rationale of the reassociation

system of treatment we are at once confronted with the circumstance that it involves a different conception of hysteria from that on which the suggestion treatment is based, and it becomes necessary to try, if possible, to harmonize the two points of view. In the first one, discussed in connection with suggestion, hysterical symptoms are regarded as the product of various active pathological tendencies, of ill-defined origin and nature. Some of them are thought to be purely of external origin, harmful suggestions implanted in a specially susceptible mind; others seem to be more or less egocentric strivings, half-conscious devices for obtaining personal ends, love of simulation as such, desire for sympathy, and so on. The number of those who employ therapeutic suggestion is so great that the actual opinions held concerning the nature of the pathological tendencies vary to a considerable extent, but most of them agree in this highly important particular that they look upon the tendencies in question as being something of a dynamic nature, as active processes consciously or unconsciously struggling for expression. In consequence of this view, treatment by means of suggestion is felt essentially to consist in the opposing of an external force, which we have traced above to the affective influence or attraction derived from the idea of the physician, against the morbid forces, the dynamic processes in the patient that lead to the production of the symptoms. The treatment is in a word an interplay of forces, and success depends on the relative strength of each.

The other point of view, with which the reassociation treatment is concerned, seems at first sight incompatible with the former one, which it apparently ignores by substituting a more static conception of the morbid process for the dynamic one there involved. The symptoms are now regarded as the excessive after-effects of various psychical traumata, shock, fright, and so on, the memories of which act as if they were irritating foreign bodies. Instead of the emotions natural to these traumatic occasions fading with time, as in the normal, and gradually ceasing to produce their distressing effects, they continue to act, retaining their vitality to a most unusual extent. This can often be demonstrated in concrete instances, as when the forgotten memory of such an experience is revived, and the corresponding emotion found to be just as intense as if the experience had occurred a moment previously instead of years ago. This is in accord with the conclusion reached in the discussion of the general management of hysterical cases —namely, that the past life is still active to an abnormal extent, and that in a sense the patient is still largely living in the past rather than in the present. That the old emotions retain their effects in such an abnormal way is thought to be explained by the present hypothesis by invoking a general constitutional defect in the patient, due to inherited predisposition, faulty education, perhaps physical ailments, and other less important factors. In the next place the present point of view lays more stress than the first on subconscious morbid agents, maintaining that the effective mental processes giving rise to the symptoms are for the great part unknown to the patient; in other words, the

traumatic memories, though still active, have been forgotten. This finding is brought into line, particularly by Janet, with the conclusion just mentioned by assuming that hysterical patients have an inborn tendency to mental dissociation, or, put in another way, that they have a congenital incapacity to assimilate in consciousness experiences that the normal can.

It will readily be seen that the second point of view brings with it a more sympathetic and tolerant attitued toward the patient than the first does. There is no longer any question of reproach for moral obliquity or selfishness, at the worst a contemptuous pity for the deficient powers of resistance shown. There is no feeling that the patient is half responsible for his condition, and certainly none that he has brought it on himself. On the contrary, the fact that the patient is really unaware of the causes of his symptoms, that these have arisen in the action of painful traumata on a defective mental constitution, make him the unfortunate victim of circumstances over which he has not the slightest control, a plaything of fate in urgent need of help and sympathy.

The foregoing remarks show that there is a considerable opposition between the points of view represented by the suggestion and reassociation systems of treatment respectively. It is here maintained that each of these contains a distinct body of truth, and, if this is so, it is plain that neither can be regarded as complete, each ignoring certain aspects of the problem. Three different respects in which the hypothesis now under discussion must be regarded as incomplete may be presented: The first is that it does not take into sufficient account the dynamic features of hysteria that have previously been pointed out; for instance, if the patient is essentially suffering from a psychical trauma, it is not very clear why he should exploit this in his own interests to so much greater an extent than a patient would a physical trauma. The second is that, although the etiological factors discovered in the preliminary exploration throw considerable light on the past history and pathogenesis of the symptoms, they afford only a very partial explanation of them.

This matter can only be discussed in a word or two, for it is more directly concerned with psychopathology than with therapeutics, but the following example may make the point clearer. It may happen that the investigation of a given symptom shows it to be historically connected with a certain trauma; thus, a tremor may be found to have first appeared at the moment of a great fright, and to have persisted ever since. Now even although the trauma is accepted as being an etiological factor of considerable significance, the finding in no way explains why precisely a tremor rather than a paralysis, and why a tremor of the left hand in particular, should have resulted, or why symptoms should follow this particular trauma and not other ones, which are often more severe. Many of the findings reported reveal a closer inherent connection between the nature of the trauma and the symptom than here indicated, but the example—a crude one is

purposely chosen for simplicity's sake—illustrates the kind of inadequacy referred to. In any such investigation one can always point to features not explained by the findings, questions left unanswered, and problems not cleared up. The third respect is that it does not make plain why, if the essence of hysteria resides in dissociation and recovery denotes synthesis, the fusing of the dissociated elements is not sufficient for recovery. According to the hypothesis it might have been expected that this should be all that is necessary, while according to the unanimous experience of the writers belonging to the present group, it needs to be amplified by other procedures, such as substitution, suggestion, and so on. The reason for this contradiction between theory and practice is to be found in the consideration last adduced—namely, that the investigation of the dissociated elements has always been incomplete. The fault of this no doubt lies largely in the technique of the investigation, for it can be shown that none of the procedures mentioned above is capable of penetrating beyond a certain definite limit into the buried mental processes of the patient. It is generally recognized that the pathogenic factors, even in the case of one symptom, are probably always multiple, the symptom being the end product of them all, and not the result of a single cause. It is quite possible, indeed it is very easy, for an investigation to disclose only some of these factors; the less important ones are usually laid bare first, being the more superficial and accessible. The complete unravelling of the pathogenesis of an hysterical symptom is a much more ambitious task than is commonly supposed, and many workers have been too readily content with their first findings, which, as was just mentioned, are usually the least important.

In conclusion, it may be said that the studies connected with the reassociation system of treatment afford a deeper insight into the origin and nature of hysterical manifestations than those of the suggestion system, and that they open up a fresh series of problems having a direct therapeutic bearing. They do not, however, furnish us with a satisfactory solution of these problems, and their imperfect success can be traced to the incompleteness of the investigations in question. Both of the two hypotheses, relating respectively to these two systems of treatment, must be regarded as one-sided, inasmuch as they both concentrate attention on certain aspects of the problem to the exclusion of others; it is freely admitted that the second hypothesis is more embracing, and therefore nearer the full truth, than the first. With this second hypothesis we see introduced a highly important therapeutic principle, that of fusion of previously dissociated elements, which radically differs from that of suggestion, and with which we shall have to concern ourselves further. The workers belonging to the present group were unable to carry this principle to its logical conclusion in therapeutics because of the insufficiency of the exploratory procedures at their disposal; it was only when a more satisfactory method of procedure, presently to be described, was perfected that it became possible to make the principle fruitful as a practical therapeutic measure,

and ultimately to solve the various problems raised by the different modes of approach. Baffled in their endeavor to base a satisfactory therapeutics on the traumatic, static hypothesis, they fell back in practice on the potent instrument of suggestion.

It is highly probable that a great part, though by no means all, of the therapeutic success attained by exponents of the reassociation methods is due to the effect of suggestion, if not to direct verbal suggestion, then to the affective rapport between physician and patient through which this obtains its power. No doubt some of the beneficial results are also to be ascribed to the synthesis of dissociated elements, however partial, to the unloading into consciousness of pent-up and buried emotions, and to the insight and control that the patient achieves by being given a broader view of matters that had previously disturbed his mind. The greater part of this success, however, is produced by the action of suggestion, and consequently presents—though in a lesser degree—the same inconveniences and defects of uncertainty as to future evolution, instability, and so on, that were discussed in the previous section. It was reserved for the system of treatment next to be described finally to eradicate these deficiencies inherent in the influence of suggestion, to reconcile the conflicting modes and aims of therapeutics, and adequately to base the treatment of hysteria on a permanent basis of scientific knowledge.

Psycho-analysis.—This method, devised by Sigmund Freud primarily for the elucidation and treatment of hysterical manifestations, has proved to be of much wider applicability than was at first thought likely or even possible. By means of it problems of the other psychoneuroses, of insanity, and of normal psychology have been investigated in great detail. Further, the use of it has not been confined to the study of the present, but has been extended also to that of the past. This refers to the psychology both of the individual, for instance, of geniuses and historical personages, and of the people, in the form of mythology, anthropology, and folk-lore. A consequence of these extended researches has been the widening of our knowledge of mental mechanisms, and the introduction of new conceptions of psychology, indeed, well-nigh the creation of a new psychology. Both the widening of the subject-matter and the novelty of many of the conceptions render the task of presentation a peculiarly difficult one, especially to restrict one's self to the therapeutic problems alone would almost certainly be to court unintelligibility. It is hoped, however, that at least the main principles of the subject can be presented with sufficient clearness, and so as better to attain this a general account will first be given before proceeding to a description of the therapeutic method itself.

FREUD'S THEORY OF HYSTERIA.—We may begin by developing to a further stage some of the considerations already made familiar in the previous sections, it being understood that the conclusions enunciated—constituting what is known as Freud's theory of hysteria—are based on investigations carried out by means of the psycho-analytic

method. In the first place may be mentioned the respects in which these investigations confirm general deductions drawn from other sets of observations. Freud fully agrees with the findings expressed in the reassociation hypothesis, that every hysterical symptom is built on an amnesia, or rather a series of amnesias, that the pathogenic factors producing the symptom consist of a number of mental processes of which the patient is unaware, and that among the mental processes are commonly, though not invariably, to be found the buried memories of painful (traumatic) experiences. The conception of dissociation is thus an essential part of the theory. He is not content, however, with the assumption that the pathogenic effect of the traumata is due to their having acted on an unstable mental disposition, though it is evident that some second factor must be in operation, if only for the reason that exactly similar traumata produce no pathological effect on other people. Instead of invoking as the second factor a vague constitutional inferiority, he examines the question by seeking to define the precise way in which the patients react to the traumatic experience. Study of this discloses certain peculiarities of the hysteric mode of reaction as contrasted with that of the normal.

REPRESSION.—Some of these peculiarities are that the patient behaves toward the thought of the experience just as though it were something to be ashamed of; she will not talk of it, dislikes to think of it, is afraid to face the idea of it, and tries to banish it from her mind, or, as it is technically called, to "repress" it. It is as if she had been prepared for the experience by previous mental activities not present in the normal, as if it reminded her in some, at first sight, unintelligible way, of previous thoughts the existence of which she did not care to avow.

A clear example of this would be that of a girl who had for some time indulged in sexual phantasies, had pictured to herself, half with a shudder, half fascinated, what it would be like to be assaulted, and then actually was assaulted. It is comprehensible that the reaction of such a girl toward the trauma is different from that of another person; her phantasy, or ill-defined desire, has been realized, and she has a sense of guilt as if she were half to blame for the situation. It is a typical behavior of such a girl not to mention the experience to anyone, not even to her mother, and it has been established that children who conceal such experiences are more likely than others to be the victim of more than one of them; they are apt to wander, not deliberately, but not altogether accidentally, in localities favorable to the occurrence of such episodes. More traumata (of all kinds, physical as well as psychical) than is commonly thought are in this way half sought for, and persons of this sort are said to have a "traumatophilic" disposition. While the abnormal significance of such experiences as the one just instanced is sufficiently intelligible without any further explanation, this is by no means so in the case of more innocent and entirely accidental ones; for example, a sudden grief at the death of a loved relative, fright at the outburst of fire, and so on. Still even here Freud has found that the occasion is one that is connected with intimate

thoughts previously present in the patient's mind, the only difference between these examples and the former one being that the association of the occasion to the preceding thoughts is a less direct one, and therefore more easily eludes the physician's notice. The result of such investigations is thus to throw the accent not on the traumatic experience itself but on the previous development of the patient's mind, the discovery of the trauma being regarded merely as a starting-point for further exploration of the origin of her attitude toward it.

DISSOCIATION.—Working along these lines Freud noticed that the mental processes connected with the symptoms, and also with the traumatic memories when these were present, always included private thoughts that the patient was not only extremely unwilling to mention, but strongly disinclined to admit the existence of even to herself. The reason for the patient's attitude was plain enough; the thoughts were of such a kind as to be incompatible with her "higher" ideas of morality, of propriety, of duty, and were thus unacceptable to her conscious self. These inhibitions, the tendency of which is to banish certain thoughts from the mind, *i. e.*, to prevent their entering consciousness, Freud groups together under the common name of "censor." The analogy between them and the supervising functions of social and literary censors naturally suggesting itself. This series of observations solved the important problem of dissociation. Mental processes are dissociated, split off from consciousness, kept repressed in the "unconscious," either when they themselves are incompatible with the higher tendencies, or else when they are closely associated.

In a word, dissociation is the product of the repressing activity of the censor with other mental processes of this unacceptable nature. As was indicated above, this activity extends beyond the mental processes inherently falling under its ban, just as in the middle ages, when a traitor was banished from a country the sentence was apt to include his family, friends, and all those connected with him. It is as though, in order to be quite sure that the unpleasant thought does not enter consciousness, care is also taken that no associated thought that might arouse the other should enter.

PHANTASY.—Further research into the nature of the mental processes that determine the patient's abnormal reaction showed Freud the enormous importance in this connection of the life of phantasy, and, indeed, one of the most prominent points in his psychology in general, concerns the relation and conflict between phantasy on the one hand, and adaptation to reality on the other. A great part of our whole mental life is built on the contrast between these two tendencies. Whenever an individual experiences a need, a desire, an ambition, he is faced with the choice of gratifying it in one of two different ways. The easier, and one might say the instinctive, way is to imagine to himself that it is already being gratified, and to indulge in and enjoy this phantasy, a proceeding that is naturally more apt to be preferred when the desire is one the actual fulfilment of which presents difficulty; instances are a young man's dreams of a prosperous career or of a

beautiful mate. The harder, but more permanently satisfactory way is by bending his energies to the task of altering the real external situation so as to bring about the fulfilment of the desire.

Phantasy has played a tremendously significant part in the history of the human race, not only because of the frequency with which external situations and possibilities balk internal desires, but because it represents the most primitive and fundamental form of mental activity, being, therefore, especially characteristic of children and savages. The power of the child's imagination is famed; to him a hobby-stick is fully equivalent to a horse, a bath-tub to a pirate ship, and a broomstick to a soldier's lance. As for uncivilized peoples, or indeed civilized ones for the matter of that, one has only to point to the universal prevalence of magical and occult procedures which constitute shortcuts to the gratification of various desires. It is not commonly realized how slowly mankind has renounced this method of gratifying its wishes, or how imperfect the replacement of it by reality still is. A matter of special moment is the strong tendency to have recourse to phantasy when the desire in question is either difficult or impossible of attainment. A woman who cannot be with her husband because he has just died flies either to the memory of the happy past or to the picture of reunion in a blissful future, the reality of the grim present being unendurable to face. Only the rarest of minds can truly face reality in all its aspects. It is notorious that whole nations have had to invent the idea of a fictitious other world in order to make life in this one even tolerable or at least to afford some recompense for its hardships.

It is commonly recognized that phantasy plays an especially large part in the mental life of hysterics, as is indicated, for instance, by their pronounced tendency toward day-dreaming. Hysteria is, indeed, perhaps the best example of a malady of the imagination. Their imagination possesses a much greater influence over both their mental and physical functions than is the case with the normal, and this excessive development of phantasy at the expense of adjustment to reality must be regarded as an important characteristic of the disorder. It is quite common with such patients for an imagined experience to have an equal significance to a real experience. An imagined trauma, for instance, may have precisely the same harmful effect as a real one. For this reason it becomes practically irrelevant whether a given traumatic memory, resuscitated from the unconscious by investigation, actually corresponds with the truth or not. The effect of it on the patient is the same in both cases.

Realizing the importance of the imagination for hysterics we can now understand the significance that unhappy experiences have in the development of their symptoms, and also the inordinate extent to which they are influenced by their past. The explanation is that, as was remarked above, unhappiness in actual life, and especially the denial of various desires, always tends to drive the person to indulgence in imagined happiness and gratification. That old phantasies from

the past life should be especially resorted to has several causes: It is partly due to the circumstance that they represent one of the two possible escapes from a hateful present, and the primary one, for all visions of the future, are constructed from memories of the past. A simple and very typical example of the flight from reality into a happy past is seen in certain hysterical deliria in prisons, the patient imagining that he is again a child, sheltered and forgiven by his parents. It is also partly due to the imperfect renunciation of past pleasures that is so characteristic of the hysteric, and which makes him shirk reality even more readily than the normal. A crude example of the attraction of the past is when a patient relapses into old habits of masturbation after the death of his partner.

WISH-FULFILMENT.—A moment's consideration shows that the essential content of any phantasy is a desire. Freud, therefore, describes the mental processes effective in the production of hysterical symptoms as *wishes*, using this term in a rather broad sense, as denoting all kinds of longings, desires, and strivings, the gratification of which can be represented by a definite goal, *i. e.*, as synonymous with what English psychologists would call conative affects. Indulgence in an imaginary gratification of them is evidently pleasurable, and it is a common experience of ardently minded people that the tearing one's self away from such phantasies and replacing them by the possibly sordid reality of the moment is by no means always easy. We see here the main reason why the hysteric finds it so hard to give up old phantasies, and why, therefore, he is so much influenced by his past. It is because of the difficulty of renouncing old pleasures, especially when the real present has nothing to offer that is comparable in delight. Careful analysis of the symptoms shows that they represent, in a distorted and at first sight unintelligible form, an imaginary gratification of secret desires. In other words, they constitute a symbolic *wish-fulfilment*. The explanation of why they are presented in a distorted guise will be considered presently.

It is difficult to overestimate the significance of this conclusion, which illuminates many of the most complicated problems of hysteria. It explains at once, for instance, the curious features that were discussed in the section on general management, namely, the way in which the patient clings to his disease, the way in which he exploits and draws gain from it—this is the very meaning of the symptom—the frequency with which he appears to simulate or even manufacture symptoms, and his undeniable reluctance to get well. It thus allows a certain justification for the unsympathetic attitude that commonly accompanies the observation of these facts, for it teaches that the patient produces the symptoms for his own selfish gain and pleasure. It lays stress, however, on the circumstance, of cardinal importance, that most of the processes go on in the patient's unconscious self, without his being at all aware of them, one that evidently must be taken into consideration in reference to the question of responsibility. We see here once more an example of how the two hypotheses of hysteria

previously described each contain a modicum of truth—corresponding to the unsympathetic and sympathetic attitudes respectively—that this is greater in the case of the second one, but that neither contains the whole truth. Again, the conclusion in question nearly reconciles the dynamic and static views considered above, for, while admitting with the latter the importance of the traumatic experiences, it points out that the underlying process is a dynamic one, consisting in the active building-up of symptoms in response to various striving desires. It need hardly be said that from the present point of view the inadequate emotional reactions of the patient are fully accounted for, these being determined by displacements from older mental processes now buried in the unconscious.

To look upon a disease as in any way the expression of wish-gratifications, is, of course, a strange conception, and one not easy for the medical mind to grasp, for all other diseases are extremely unwished-for occurrences. It is not obvious how any suffering can bring pleasure, still less how a given hysterical symptom, a paralysis or spasm, can be related to any definite wish. It must not be forgotten, however, that, as was emphasized earlier, psychoneuroses differ very radically from ordinary diseases, and the application of the term "disease" to both sets of phenomena is a matter of custom and convenience rather than an expression of an inherent similarity. We must therefore be prepared to expect in this region conceptions that are foreign to ordinary medicine. To make clear the detailed connection between specific wishes and the symptoms they give rise to is impossible here, for it would necessitate the relating of a full analysis in a way that lack of space forbids. The following considerations, however, may throw some more light on the matter.

OVERDETERMINATION.—An hysterical symptom, and the mental processes composing it, is an elaborate structure, built up of a great number of different elements. When fully investigated it is found to contain not a few ideas and memories, as Janet and others hold, but a considerable section of the patient's deepest mentality; in many cases the unravelling of a single symptom means the unrolling of most of the patient's inner mental life. A symptom can thus express more than one thought, just as any act in daily life may serve more than one purpose. Freud gives the name "overdetermination" to this process of a symptom being determined by several contributing factors. Sometimes the different factors are convergent, being of different origin, but more typically they represent merely different phases of the same continuous tendency.

An analogy from daily life might be the case of a man defending a friend who had committed a social sin, but whose action is dictated not only by the desire to help his friend, but also by the circumstance that he knows himself liable to the same temptation, and that it was this common trait in their characters that first, perhaps unconsciously, drew them together; he is really defending himself. Here one sees how interrelated the factors are, and one can describe as the ultimate

origin and motive of the conduct in question the presence in the man of the particular trait of character. In hysteria one similarly sees that the different agents producing a given symptom are, so to speak, on a series of different levels; the deeper ones are not only older in time, more fundamental in importance, but are less accessible to consciousness and evoke a greater resistance when they are being explored. In any investigation of them it is only too easy to halt at the first stages, to explore only the upper levels of the mind, and to imagine that one has elucidated the whole matter. It needs a tireless energy to pursue the investigation to its proper end, a ceaseless asking of the question why, a restless discontent with the finality of any explanation, and a determination to discover not only the cause of the proximate cause, but the cause of this, and so on until the whole structure of the symptom is laid bare. Yet, as will presently be explained, the success of the treatment depends on the thoroughness with which this exploration is carried out, for the more fundamental is the aberrant tendency dealt with, the more satisfactory is the result as compared with that of dealing with the late products of the tendency.

This matter of the overdetermination of hysterical symptoms has evidently also a bearing on the question of the period of life at which the various pathogenic factors developed. Freud maintains that all such symptoms can be traced to deviations from the normal in the earliest age, usually to the first three years of life, and always to below the first five. If certain aberrant tendencies have not been developed at the latter age, then nothing that happens to the person later on can give rise to hysterical symptoms. The importance of this consideration for prophylaxis during these early years is obvious. It also has a bearing on the question of heredity, for it is customary to ascribe to this any mental deviation the beginning of which cannot be recalled, the very existence of the important first years of life, for which there is usually an amnesia, being completely overlooked.

Distortion of the Wish-complex.—In the next place a little may be said about the distortion that the wish-complex undergoes before becoming manifested as a symptom. It was remarked above that special features of this complex are that it is a repressed one, that it is unconscious, and that it is of such a kind as to be incompatible with the patient's conscious attributes of morality and propriety. These features become more intelligible now that we have realized the infantile origin of such complexes. The young child is not moral or proper at the start; he is not immoral, it is true, but he is definitely non-moral, and a great part of his early education consists in acquiring the standards of the adult on all sorts of matters. He is preoccupied to a far greater extent than is appreciated by adults, who have forgotten this part of their life, with bodily functions that are tabooed in polite society, he is addicted to habits that can only be described as nasty, and his dawning curiosity is apt to be concerned with questions that he is commonly considered to be too young to think about. As for his ethical sense, the egocentricity of the child, his attitude toward

property, and his disregard for what is due to others are proverbial qualities. The hysteric may be said to have retained the normal infantile characteristics to an unusual extent, though, of course, the external manifestation of them is considerably modified by educational influences; like a well-known hero of the juvenile drama, he "has never grown up."

The repressing force of the educational censor, though it is strong enough to prevent any direct expression of the original tendencies, does not succeed in abolishing their striving for such expression. As a result of the conflict between these two forces a compromise is reached, a mode of expression is permitted by the censor under protest, which embodies the original tendency, but in a veiled form. These compromise-formations constitute symptoms, and they are to be regarded as substitution-products which replace the repressed tendency in its primary form.

In other words, symptoms symbolize wish-fulfilments, and they bear the mark of the censor. The action of the latter is quite analogous to that of the social censor of polite society. In circles where ladies do not have legs, they confess to "limbs," and admit that their chairs and pianos have "supports." Thus an inherently improper subject may be discussed provided it is hinted at indirectly and delicately enough by means of suitable euphemisms. Hysterical symptoms are just such hints, and they can be understood only by interpreting them in plain language. It is further clear that the more shocking the topic, or the more rigorous the censor, the more circumlocutory and indirect will have to be the mode of expression if it is to be permitted. In psychological phraseology, the more intense is the repression the more superficial is the association between the repressed complex and the conscious manifestation of it. A complex that can manifest itself only through illness and suffering must needs be both significant in itself and in a state of unusual repression, and it is therefore perfectly intelligible that most of the connections on which the symbolism is based seem to a normal person to be unnecessarily strained. An example of this may be given: Various repressed thoughts relating to the male organ may betray themselves in consciousness by certain exaggerated emotions, particularly fear at the idea of a snake, which thus becomes a substitute or symbol for the former. Now to the average healthy person the connection or resemblance between these two ideas is not strong enough for such a comparison ever to occur to him, but to someone with an intensely strong emotion concerning one of them the other is sufficiently alike to recall the first; the actual resemblances evidently lie in the general shape, in the presence of a head—often hooded—in the capacity for erection, the habit of ejecting a white fluid into human beings—an act followed by grave consequences, the insinuating mode of attack, and other treacherous features common to the two objects. The same symbolism appealed to cruder civilizations than our own, for in early religions all over the world the snake has been the commonest phallic emblem to be revered and

worshipped, and numerous still living superstitions and folk-lore beliefs are survivals of this.

The knowledge of the causes of distortion in the manifesting of unconscious complexes explains how it is that a symptom that evidently gives rise to suffering may also bring pleasure. Three matters have to be borne in mind here. First, that the pleasure or gratification is mainly an unconscious one; it is chiefly buried and secret desires that are being stilled. Secondly, the hysterical symptom is not purely a wish-fulfilment, but a compromise between this and the repressing forces; while, therefore, the gratification refers to the unconscious wish, the suffering takes most of its origin in the conflict between this and the inhibitions of shame, fear, disgust, etc. Thirdly, suffering is itself often a pleasure. The form of sexual perversion known as masochism, which consists in a desire to suffer and a delight in pain, is present even in the normal to a greater or less extent, the expression "he hugs his sufferings" being a familiar recognition of this tendency; in hysteria it is always abnormally pronounced.

It may now be asked how this symbolism can express itself in bodily manifestations, such as the physical symptoms of hysteria. No emotion occurs without some somatic accompaniment, such as the muscular tension of anger, the palpitation of fear, etc., and, apart from speech, our only means of expressing any mental process externally is through various bodily movements. These movements are always connected with corresponding ideas in our minds, and when such ideas are assimilated to a complex they can symbolize it. In this case a given movement, for instance, walking, may come to represent a complex with which the corresponding idea is indirectly connected, for instance, an inability to move the bowels. This may be put in physiological language by saying that an afferent impulse which is inhibited from finding its normal expression, corresponding with an emotional manifestation, flows along other neural paths, producing the appropriate motor effect. An hysterical symptom would be like a man shaking his fist in defiance without feeling angry, assuming that the emotion was dissociated, and therefore not conscious.

CONVERSION.—Freud uses the term "conversion" to designate this replacement of a mental by a physical manifestation, and describes the familiar type of hysteria in which the physical symptoms predominate as "*conversion-hysteria.*" He considers that in hysteria there is a special predisposition (*somatisches Entgegenkommen*) that makes this process readier to occur than in the normal, an inference allied to the generally recognized fact that with such patients bodily processes are more extensively influenced by mental factors than is the case with the normal. He also finds that there is frequently a special predisposition of a given part of the body to discharge the energy that is flowing in an aberrant path. The choice of a particular symptom is thus determined not entirely by the mental associations or symbolism, but also by the attraction that a given part of the body, defective or actually diseased, may present toward any symbolic process that is

possible. For example, if the repressed complex can in any way be symbolized by the idea of lameness, it is more likely to become so when the patient has already a lame leg. This finding also is in harmony with common experience, for so well-known are the local, exciting causes of hysteria that the attention of many physicians is concentrated on them to the relative exclusion of the more important causes; gynecologists are notorious in this respect.

PREDOMINANCE OF PSYCHOSEXUAL FACTORS.—It was said above that the primary wishes and phantasies ultimately responsible for the production of hysterical symptoms are of an intimate nature, and incompatible with the moral views of the patient's consciousness. It is, therefore, not to be wondered at that psychosexual factors play a predominating part in the pathogenesis, especially since phantasy altogether is in its very nature closely related ontogenetically to the sexual instinct. There is little new in this inference, which has been suspected from the beginning of medicine, and which is expressed in the very word "hysteria." Freud has formulated the conclusion that every hysterical symptom is built on a repressed sexual wish, and, writing as he has, in an age when every nerve is being strained to abolish from the world the idea of sexuality, he has encountered as a result a torrent of censure and abuse. No one, however, who has been impartial enough to investigate himself the facts on which Freud's conclusion is based has come to any other conclusion, so that at least it must be seriously considered. Freud, of course, admits that many other kinds of pathogenic factors are also present, but he maintains that the psychosexual one is the specific and only essential factor.

Some misapprehension has arisen owing to the breadth of Freud's use of the term "sexual," a subject that can be considered here only with the utmost brevity. Reference should be made to his *Drei Abhandlungen zur Sexualtheorie,* which has recently been translated by A. A. Brill. Freud does not confine the use of the term to processes that serve the function of reproduction, but would also call sexual such acts as masturbation, the main function of which is to give pleasure. He contends that the sexual instinct does not suddenly emerge as a new phenomenon at the age of puberty, in the way that is popularly believed, but that the form assumed at this period is gradually evolved from rudimentary elements present even in the earliest years of life. Sexuality is not absent in the child; it is merely different, being unorganized and imperfectly adapted to its later functions, and the childhood form deserves the term sexual as much as does the adult one. The infantile (childhood) manifestations are, like those of the adult, both mental and physical. Instances of the former are attraction toward the opposite sex, curiosity regarding sexual topics, and various phantasies and desires, the importance of which was pointed out above. On the physical side there are the experiencing of and search for pleasurable sensations, which at first are diffusely distributed over the body, the supremacy of the genital region in this respect not being yet established. Certain areas are from the beginning more sensitive

than others; to these the name of erogenous zones has been applied. Prominent among these are the different orifices of the body, particularly the urinary one and those of the alimentary canal; one of the latter retains its sexual significance even in adult life, as is shown by the occurrence of kissing. The functions relating to these orifices are apt to evoke specific pleasurable sensations which in intensity go beyond what is explicable by the mere physiological significance of these functions. Just as adults partake of certain delicacies not merely so as to maintain a metabolic equilibrium, but because they like eating them, so an infant may suck a rubber teat, not because he is hungry, but because he likes doing it.

All this primordial mass of pleasurable activities and sensations undergoes profound modifications as the result of growth and education. One part only becomes selected and differentiated so as to from the adult sexual impulse in the narrower sense. A greater part is found to be incompatible with the standards of social observance, and is repressed, buried, forgotten. Freud has thus solved the problem of normal infantile amnesia as well as that of hysterical amnesia; both are due to the process of repression. The repressed impulses, however, do not die—it is much harder to kill old desires than is sometimes thought—but continue throughout life to strive toward gratification. This they cannot do directly, and are thus driven to find indirect, symbolic modes of expression. The energy is transformed into these secondary, more permissible forms of activity, and furnishes a great part of the strivings of mankind that lead to social and cultural interests and development in general. This process is termed by Freud "sublimation," a figurative expression borrowed from chemistry.

Under certain circumstances the attempt to sublimate the primitive impulses only partially succeeds. If it entirely fails there remains as a result some form of sexual perversion, the meaning of which had always been a riddle, but which Freud has shown to represent merely an exaggeration of one or other of the infantile biological components of the sexual instinct. In hysteria the repression does not succeed in leading to the normal sublimation of the primitive impulses into social activities, failing thus to bring about a sufficient renouncement of the old pleasurable tendencies. It is not certain whether this failure is due to an unusual strength of the impulses in question, or to an inadequate development of the inhibiting forces; probably both factors are at work. The latter one may plausibly be correlated with the spoiling of children that is so often followed by hysteria, *i. e.*, with the insufficient accustoming of the child to the restrictions that life imposes. On the other hand, the repression does not altogether fail. Its influence is strong enough to prevent the impulses from functioning in their original naked guise, and forces them to adopt more indirect modes of expression. The compromise between the impulse and the repression leads, as was explained above, to the formation of the actual symptoms.

THERAPEUTICS AND PSYCHO-ANALYSIS.—We have now to take up the bearings of this theory on the subject of therapeutics. The main

problem evidently is how to divert into useful channels the misdirected energy that is finding expression in hysterical symptoms. This aim resembles that of the "side-tracking" method, but differs from it in this important qualification, that it is no longer a question simply of replacing the symptoms by social interests, but of diverting the same energy into a new channel. It is essential to realize that the symptoms and the social activities that connote recovery from them are both fed from the same source. It is clear that the deficiencies of the methods previously described are due to their failure to release this energy, which is locked up in its original and insufficiently altered form. To accomplish this release, and thus set free the energy to be sublimated in the normal way, is the central aim of the psycho-analytic method of treatment.

Freud found by experience that the only really satisfactory way to carry out this aim was by leading into consciousness the repressed, buried wishes that constitute the origin of the pathological tendencies, and thus rendering superfluous the existence of the replacement formations, *i. e.*, the symptoms. Certain definite mental changes follow when this is done. Affects that were previously pent up and localized to a given complex (focus of disaggregation) now become discharged and diffused throughout the patient's mind, thus losing their excessive intensity. Illogical displacements of an affect become resolved through its being traced to its original source; the inadequate emotional reactions and inappropriate deportment previously described then disappear. Finally, and most important of all, the repressed complex becomes for the first time directly accessible to the influence of numerous conscious considerations, and can thus be brought into harmony with the rest of the patient's mind. The essential point to grasp here is that consciousness can deal with and control a mental process that is conscious far better than one that is not. In every-day life the same thing may be seen, though on a smaller scale, because it usually concerns a matter that is only slightly out of the focus of conscious attention. We avoid many irritating little habits and thoughtless pieces of conduct once our attention is drawn to them and once we realize what before we had not been aware of. All this may be summarized in the sentence that while an unconscious complex is necessarily in a state of dissociation, which means mental disharmony, translation of it into consciousness signifies its assimilation, which means mental harmony.

Freud, therefore, strictly maintains the therapeutic principle discussed above, to the effect that fusion and conscious assimilation of dissociated elements is the aim to be striven for. It will be gathered that to carry this out satisfactorily is a much more difficult matter than some writers have supposed, but, being better aware than they of the nature of the obstacles in the way, Freud was in a more advantageous position to devise a means of overcoming these. They consist, as has been remarked, in various resistances that are preventing the repressed complexes from entering consciousness, and in consequence

Freud addressed himself principally to the task of overcoming these resistances. His method of treatment has undergone very considerable modifications and improvements during its evolution in the course of the last twenty years, and he considers that this evolution is by no means yet complete. Originally he proceeded by taking one symptom after another, and attempting to trace the development of it. He soon found, however, that the pathogenic sources of the different symptoms were inextricably interrelated, so this plan was impracticable, or at least inexpedient. He now passes by the symptoms, and leaves altogether the order of exploration to the spontaneous guiding of whatever may occur to the patient.

"FREE-ASSOCIATION" METHOD.—The psycho-analytic method makes use of a number of different procedures. The fundamental principle guiding all of them, however, remains the original one of "free association." The patient is told to relate freely whatever may come into his mind, however inconsequent, disconnected, or unimportant the successive thoughts may appear to him to be. He is so far as possible to suspend all criticism of this, is to refrain from guiding his thoughts either into any direction or from any direction, and is to confine his attention to the sole task of noticing and relating the thoughts that occur to him. It is found that when the usual conscious guiding of thoughts is abrogated they become directed by the various unconscious complexes that lie uppermost at the moment. These may not come to direct expression, but they betray themselves by a series of manifestations, chiefly emotional ones, that the psycho-analyst is trained to observe. The patient is unable to perceive the significance of the thoughts that occur to him when a buried complex is being neared, being, as it were, blinded to it by the action of the censor that prevents him from being aware of the complex, but to the outside observer this significance is often plain enough. The patient's thoughts keep hovering about the painful spot, they hint at and thus betray what is at the back of his mind, and from them the observer gets unmistakable clues. It will readily be understood that accumulated experience sharpens the capacity to interpret the manifestations in question, and to perceive the nature of the painful complex the presence of which is being betrayed. One is thus enabled to appreciate the kind of resistance that is operative in the patient's mind, to help him to overcome this, and so to allow the buried mental processes to enter consciousness.

DREAM ANALYSIS.—One of the most valuable sources of material for the analysis is furnished by the study of dreams, and it is impossible for anyone to carry out a psycho-analysis unless he has by experience become familiar with the technique of dream-interpretation. Freud has shown that a dream (of the normal) is not the meaningless and insignificant phenomenon it is generally supposed to be, but that it is a complete psychical structure formed according to definite laws, and that it represents the most intimate and important thoughts of the personality. The formation of a dream is extraordinarily similar to

that of an hysterical symptom; both are built up by means of the same psychological mechanisms and symbolisms; they constitute a compromise resulting from a conflict between repressed impulses and the endopsychic censor; they bear the closest relation to infantile sexuality, and the sources of the two phenomena are frequently identical. As in the case of symptoms, the manifest content, or dream as it is remembered, has to be traced to the latent content; the underlying thoughts that have produced the dream before its real meaning becomes evident. It is very like the question of translating from a difficult foreign language. The similarity between dreams and symptoms, their common origin, and other circumstances that need not be detailed here, make the investigation of dreams the most valuable means we possess for exploring a patient's unconscious mind. Further information must be obtained from Freud's *Traumdeutung*, or, failing this, from papers by the present writer in the *American Journal of Psychology*, April, 1910, and the *American Journal of Insanity*, July, 1911.

MINOR FAILURES OF MENTAL FUNCTIONING.—Another fruitful source of material is the investigation of certain minor failures of mental functioning, such as are commonly to be observed in the normal. Belonging to this group are "accidental" slips of the tongue, slips of the pen, inexplicable forgetting of familiar names and pieces of knowledge, omitting to carry out an intended act, making a mistake and carrying out an unintended act, overlooking matters, mis-reading or mis-seeing something, mis-placing or losing objects, and many other similar occurrences. Psycho-analysis of such matters shows that "chance" plays an inappreciable part in the production of them, and that they result from the disturbing action of some train of thought that is being kept back. Although they are customarily attributed to chance, there are occasions on which even common intuition divines the true state of affairs. Thus if a lady on embracing someone by the name of William were to make a slip and say: "I love you so much, Harold," he might not unnaturally display some curiosity as to the identity of Harold. Much valuable information may be gained by attentively observing and examining this group of occurrences, for they betray thoughts, usually of significance, that the person intended to conceal. In many cases the analysis, which is often far from easy, brings to light highly important tendencies that the person may not have been aware of. Freud has devoted to this subject a book entitled *Die Psychopathologie des Alltagslebens*, and a study of it by the present writer may be found in the *American Journal of Psychology* for October, 1911.

WORD-ASSOCIATION METHOD.—A very useful adjunct to psycho-analysis, not used by Freud himself, but by most other workers in this field, is the word-association method as adapted by Jung. A number of simple words are called out to the patient, who has at once to answer to each with the first word that comes to him; the interval between the stimulus and the reaction ("reaction-time") is timed by means of an ordinary stop-watch. It is found that with various words,

which cannot, of course, be predicted beforehand, the patient is unable to respond smoothly and easily; he stumbles, and the response shows certain peculiarities termed by Jung "complex-signs." There are over a dozen of these, the chief being: Delay in the reaction-time (corresponding with the falter of embarrassment), inability to respond (temporary mental confusion, an exaggeration of the preceding), an anomalous superficial association—especially when it occurs repeatedly with similar test-words, repetition of the stimulus-word (akin to the stammering echo with which a person may respond on being taken aback by an awkward question), repeated use of the same word throughout the examination, perseveration in subsequent reactions, assimilation of the stimulus-word in an unusual or unexpected sense, and erroneous or defective reproduction of the reaction-word when the patient is subsequently asked to recall the answers he gave to the individual stimulus-words. The stimulus-words that evoke several of these peculiarities in the reaction are always words that are connected with some significant emotional complex, so that they serve as valuable clues to the discovery of these. The method is chiefly of use in giving one a general preliminary orientation as to the emotional factors in the patient's mind, and for this purpose is commonly employed as a first step in the analytic treatment. It should be said, however, that those who have had much experience of the procedure are able to use it to considerably greater advantage than are others, and can often carry out a quite extensive analysis on the basis of it alone. Further details must be obtained from Jung's volumes entitled *Diagnostiche Assoziationsstudien.*

REACTION.—The presence of emotion when a complex has been stimulated by one of the test-words in the association test can be objectively verified, and graphically registered, by observing certain physical manifestations that accompany it, for instance, respiratory and circulatory changes. Through the work of Jung, Binswanger, and others a particularly delicate method for this purpose has been elaborated, known as the "psychogalvanic reflex." It is based on the discovery made in 1888 by Féré that in the presence of emotion the body offers a greater resistance than at other times to the passage through it of a galvanic current; the increase in electrical resistance is probably due to the dampening of the surface of the body by an imperceptible increase in the secretion of the sweat glands. The method is too cumbrous for therapeutic purposes, but it is of interest as confirming the theory of the word-association method, since it provides a sensitive and objective check on the inferences drawn from the occurrence of complex-signs. In this connection it may also be mentioned that the familiar observation of a quickening of the pulse in the presence of emotion has been rediscovered by Coriat under the somewhat grandiloquent title of the "psychocardiac reflex." He uses it in conjunction with the association method.

TRANSFERENCE.—We have, finally, to discuss the question of how one deals in psycho-analysis with the affective rapport between physi-

cian and patient that was seen above to constitute the essential basis of suggestion. It has been pointed out that this rapport is brought about by the patient transferring to the physician various positive affects of sympathy, liking, etc., which were previously present in his mind, and which originated in connection with persons having considerable significance to him. Further, that the occurrence is only one form of this transference, another being that of various negative affects, of antipathy, dislike, etc. In the simpler methods of treatment the physician is, to a great extent, at the patient's mercy so far as this transference is concerned. If it is of a negative kind, the treatment fails; if it is of a positive one the patient may improve, but is very liable to become unduly attached to and sustained by the physician, thus being unable independently to deal with the exigencies of reality. In psycho-analysis, on the contrary, the physician does not stand helplessly before the situation, but takes advantage of it for therapeutic purposes. Every time he finds himself the object of transference of some affect, and there are special means of observing the earliest indications of this, he institutes an analysis and traces the origin of the reaction in question. In this way he is able to guide the source of it into the patient's consciousness, and, by making him aware of his previously unconscious tendencies, to put him in a position to control, divert, or otherwise modify them. It should be said, however, that the management of these transferences constitutes the most difficult part of psycho-analysis, and one that the beginner would, therefore, do well to pay special attention to. The reason for this is that, in ways that cannot here be gone into, the process is the chief one employed by the patient to manifest his resistances against the treatment. Suggestion is thus the main hindrance to treatment by psycho-analysis, and this is one of the grounds, among others, why the psycho-analytic method cannot be satisfactorily combined with suggestion or hypnotism, as Forel and others have unwisely advocated. The two systems are fundamentally opposed in their aims.

General Criticism of the Psycho-analytic Treatment.—The advantages of this method will be considered in reviewing the general subject of mental therapeutics, so we may here confine ourselves to its disadvantages, real and assumed. The evident truth that there necessarily are limits to the applicability of the psycho-analytic method has been exploited by those who oppose it on other grounds. It is not easy to define the limits of a method that is still in the process of evolution. The improvements in technique introduced since the method was first devised have extended its field of operation beyond what was then thought probable, but they have, on the other hand, more sharply defined its limitations in certain directions, most of which are now known in considerable detail. Obviously nothing can be done with patients who are brought against their will to be treated, this applying equally to all modes of treatment. A certain level of intelligence is necessary, but hysterical patients are not often grossly deficient in this respect. In the writer's experience, which comprises

a considerable number of cases among the uneducated class, a lack of sufficient intelligence has only once or twice proved a bar to the treatment. It is not easy to treat a patient if one is not familiar with their mother-tongue, for under these circumstances it is hard to follow the play on words and the references to idioms of childhood. Age is a serious obstacle. The reason for this is not so much the diminished plasticity of the mind, a feature which varies greatly with different people, as the extent of the material to be worked over—the symptoms becoming increasingly overdetermined as time goes on—and the lessened opportunity for readjustment in life, for making a fresh start; this latter factor is also important in affecting the physician's interest in the case, for the task of readjusting a personality is necessarily more attractive with someone who has the most of life still before him. Freud sets the age of fifty years as the upper limit, but several wrokers, including the writer, have had considerable success with patients older than this. It is further desirable that the patient's personality should have a certain moral value and earnestness, for in such cases one can achieve much better results. In deciding whether a given patient is suitable for the treatment one has thus to bear in mind a number of considerations. In spite of the qualifications just mentioned, however, the method is certainly applicable in the majority of cases.

From the patient's point of view the disadvantages are mainly two. Instead of being "spoon-fed" with some comfortable treatment that makes him well while he passively awaits the result, he is here called upon to participate actively in efforts against which he is constantly rebelling and which may severely tax his patience and determination. In practice, however, it is found that interest in the progress of the investigation, and in the new self-knowledge gained, goes far to counterbalance the tendency to resign without a struggle, and that with a tactful physician it is rare for a patient to give up on these grounds. The other disadvantage is the amount of time consumed. With an average case this is about three or four months; it is sometimes less, frequently more, and in very exceptional cases of great severity and long standing it may be a year or even more. Against this disadvantage have to be put the following considerations: Many cases are otherwise incurable; the time demanded for a radical form of treatment that promises permanent freedom from suffering does not appear excessive when it is compared with the total amount of time expended by such patients in sanatoriums or on health voyages. Provided that other circumstances allow, psycho-analysis can be carried out while the patient is engaged at his occupation, this indeed being an important desideratum from the point of view of the treatment alone. Similar considerations apply to the matter of cost, which is usually about that of a major surgical operation; in this respect the drawback of time applies to the physician rather than to the patient.

A great number of objections have been raised to both this method of treatment and to Freud's theory of hysteria on which it is based.

Nothing will be said here about the latter except that they cannot be regarded as in any way more cogent than the others. Most of the hostile criticisms have been made to serve rather a polemical than a scientific purpose, and these it would be kinder to let rest in peace. It can readily be demonstrated that many of the individual objections are merely pretexts seized at to cover deeper ones, and often those who bring them are unaware of the unconscious roots of their antipathy. The method runs counter to two of the most formidable of prejudices. The play on words by means of which much of the analysis is performed instinctively offends the normal conscious mind and produces a feeling that the connections established are strained and far-fetched; this is inevitably so unless one remembers that the mental processes concerned behave in this illogical fashion, which inherently differs from that characteristic of conscious modes of thought. The unravelling of a symptom proceeds along the same paths that were traversed in the spontaneous making of it, and therefore necessarily reveals mental mechanisms foreign to the conscious mind, but distinctive of the unconscious. The individual details of the connections and symbolisms disclosed by the free association method have been confirmed to the full by comparison with those present in other products of the human phantasy, notably in wit, slang, mythology, folk-lore, superstitions, philological processes, certain religious beliefs, and so on, while the theoretical principles rest not only on empiric findings and results, but also on the objective proofs irrefutably established by the experimental work of Jung and other investigators. The other prejudice referred to concerns the subject of sexuality, and it will be admitted that there is no other subject that has been submitted to such powerful taboos as this has.

Psycho-analysis thus uncovers a type of thought, the symbolizing or phantastic one, and a group of mental processes, those relating to sex, against the manifestation of which powerful forces are operative in the minds of the normal as well as in that of the hysteric. These forces, the same ones that with the hysteric produce the distortion in the expression of the buried wishes, and also the resistances encountered during treatment, lead in the normal to the employment of every pretext or argument that may avail to discredit any measure intended to circumvent them. These arguments owe much of their strength and appearance of justification not to their intrinsic merits so much as to the unconscious factors of which they are really symbols. Intellectual processes that are merely representatives of deeper emotions are extremely hard to modify without dealing with the underlying forces, for, as anyone may discover by attempting to reason with a patient suffering from obsessions, the power of mere logic in this respect has very definite limits. Stress has been laid here on these general considerations, since experience has shown that endless time may be wasted in vainly refuting individual arguments, and that the only way of fairly judging on the problems at issue is by first dealing with the nature and causes of prejudices that blind the observer and distort his judgment.

Perhaps the commonest objection urged against the psycho-analytic method is that it is harmful to investigate a patient's sexual thoughts. This is usually accompanied by a denial of the importance of such matters in regard to the pathogenesis of hysteria, an argument well designed to buttress the objection. The procedure is similar to that of antivivisectors who believe experiments on animals to be wicked, and go on to say that they are also useless and misleading. Granted, however, that the view held of the pathogenesis is correct, and this is a matter on which those best qualified to judge have no longer any doubt, then those who sustain the objection just mentioned are in the curious position of holding that a group of agents of considerable pathogenic importance are to be regarded as not belonging to the sphere of medical science, a position that excellently harmonizes with the theological conceptions of the middle ages, but which is not seriously tenable at the present day. It is on a level with the view, still adhered to in Eastern harems, that only a strictly limited portion of the human body should be accessible to medical examination. The precise harm that it is feared might accrue from psycho-analytic investigation is rarely if ever defined, so that the matter is difficult to discuss. It can, however, be freely granted that some potentiality for harm in the exploration of sexual thoughts and fancies does really exist, just as there exists a distinct potentiality for harm in the exploration of the cavities of the body, but it is obvious that in both cases the harmfulness of the procedure greatly depends on the way in which it is carried out. A systematic investigation performed by a trained psycho-analyst differs from a vague "talking about sexual matters" quite as much as an aseptic laparotomy differs from the rending thrust of a cart-shaft.

It is sometimes asked why the buried sexual thoughts should not be left to lie in peace. The answer is simple: Everyone would be content to leave them so, but the trouble in hysteria is that they are not at peace, and do not allow the patient to be. The effect of psycho-analysis is to substitute a harmonious peace for the turmoil of conflict. The fear is often expressed that the exploration, which is so integral a part of this treatment, may increase the tendency to morbid introspection already very pronounced with these patients. On the contrary, psycho-analysis strikingly frees them from this tendency. The morbid introspection is due to their not being able to get away from the influence of the disturbing complexes, while after this influence is removed the patient is for the first time able to dispense with the necessity for the ceaseless and vain self-examination, and can devote his energies to useful activities.

Another prominent objection is to the effect that the practice of interpreting the patient's associations introduces an incalculable personal factor, and hence an undue subjectivity in the procedure. It is, of course, true that this practice, being a psychological process, does introduce a personal, subjective factor, just as the interpretation of the various cardiac sounds heard with a stethoscope, or of the sensations experienced on palpating an abdominal tumor, also necessarily

involves the introduction of the same factor. Subjectivity can be minimized in any mental operation, such as that of judgment, only by rigid adherence to the rules of scientific thinking, and these apply as strictly to physiological as to psychological modes of investigation. The justifiability of any given inference that may be drawn from observations made, and of any generalization, depends exclusively on two criteria—namely, the capacity of the generalization to resume, or "explain," all the observable phenomena, and to predict the occurrence of future similar phenomena. In psycho-analysis the criteria of science are adhered to as strictly as in any other branch of scientific medicine, and a good deal more so than in some. It presents further the unique safeguard that the person carrying out the investigation is, through self-analysis, well aware of the psychological inhibitions that are apt to interfere with the application of the rules of scientific thinking. The subject is inherently too complicated to permit, at all events as yet, of inclusive laws being formulated in respect to every detail, in the way that they can with the chemical analysis of a simple salt, and of thus making the procedure largely independent of personal experience and judgment, but nevertheless the opportunities for the confirmation and verification of the individual inferences are both numerous and satisfactory enough to check any fluctuations introduced by the "personal equation," and to lend to those made by an experienced psycho-analyst a very high level of probability. Further discussion of this matter would lead us too far into the subject of the technique of psycho-analysis. For the study of this, as of the technique of all the other methods that have been dealt with above, the reader must be referred to special works; it has been possible here only to sketch the broad outlines of the subject.

Concluding Remarks on Mental Therapeutics.—In comparing the different forms of this, just as in the case of any other clinical procedure, it is desirable to keep distinct the questions of scientific value and of clinical applicability in view of the exigencies of practice; the former will be considered first.

The comparison of the therapeutic results obtained by means of the various forms of treatment described above is far from easy, partly because the criteria of recovery are less clearly defined with hysteria than they are with most diseases, and partly because of the difficulty of securing an adequate number of cases that have been treated in different ways and the subsequent history of which has been followed up for the length of time necessary to form a judgment. Under these circumstances there are only two ways of reaching a comparative estimate: (1) By studying the effects of different modes of treatment on the same cases, and (2) by weighing the impressions formed by the experience of those who have made use of more than one method. Unfortunately, however, the number of workers who have not confined themselves to one given system of treatment is very small. The present writer is in the almost unique position of having had a fairly extensive personal experience of every one of the methods described

above, and the conclusions he has in this way reached will shortly be mentioned. He has had gratifying successes with every one of the methods in question, and also failures with all of them. An immediate inference that seems to follow from this is that it is quite easy to bring about recovery with some cases, and very difficult or perhaps impossible with others; most cases probably lie between these extremes. Except under the rarest circumstances he has discarded the use of methods involving suggestion, because of the incompleteness of the results, the disadvantage of creating a condition of dependence, and the impossibility of predicting with any degree of certainty the future evolution of the disease. According to his experience the psycho-analytic method escapes these defects to a much greater extent than any other. He has heard of only one case in which another method succeeded better than the psycho-analytic, but has personally observed a great many in which this succeeded after other methods had failed. Dealing as it does much more radically with the fundamental causes of the malady than any other method, and fulfilling better than any other the "activity" criterion discussed above, it is concerned not only with the roots of the current symptoms, but with the whole pathogenic material in the patient's mind, and thus affords the surest prophylaxis against any later morbid developments. In some respects, indeed, psycho-analysis may be regarded as signifying far more than a mere therapeutic measure, namely, a thorough reëducation of the patient's whole mind, with a corresponding self-knowledge, self-guidance, and self-control.

The present writer, and all others who have investigated the subject, are thus convinced of the surpassing value of the psycho-analytic method in the treatment of hysteria, and would advocate the use of it whenever this is possible. It remains to be discussed, however, to what extent this is feasible in the present state of medical practice. It has been urged that the use of the method will be confined to a few specialists, on the ground that to acquire the technique of it demands a special course of study, including almost of necessity a preliminary self-analysis. Some writers have even expressed the opinion that it can be acquired only by those having special gifts of psychological insight. This is not at all so; there is every reason to believe that the number of physicians who have not the capacity to make successful use of the method is decidedly small, though it is to be expected, as in the case of any other difficult technique, *e. g.*, surgical, that those possessing certain qualities will attain a higher standard of excellence than others. Even if the use of the method were to be confined to a few, as the performing of various specially difficult surgical operations or the use of vaccine therapy is at present, it is hardly a tenable position to maintain that the general practitioner is not called upon to know anything about it. An important further consideration to be borne in mind here is that a knowledge of at least the principles of the subject is highly desirable for practitioners, who, of necessity, come most into contact with such patients, since a very great deal can be done to prevent a later hysteria

by paying attention to relatively simple matters in early childhood provided that one knows which of these are of the most essential importance.

That the medical profession as a whole is so unprepared to undertake the carrying out of psychological measures is, however, a most unsatisfactory state of affairs, especially in view of the recent encroachments in this respect on the part of unqualified people, and it is one not to be remedied by the creation of a small class of psychological consultants. It is on various sides becoming increasingly plain that the perpetuation of the present apathy toward the subject of mental factors in disease is equally harmful for the prestige of the profession and the health of their patients. The reluctance, or inability, of so many physicians to take up the use of adequate measures for the treatment of hysteria is only one more argument in support of the conclusion, now being widely recognized, that medical education urgently needs to be supplemented by the introduction of systematic training in the principles of clinical psychology. The difficulty of presenting a method such as psycho-analysis is thus a reflection on medical education rather than on the nature of the method. For some time to come no doubt physicians will continue the cruder and less adequate modes of treatment, but it will be with a steadily growing realization that they are not doing for their patients what can be done, and that valuable progress in knowledge has been made of which their deficiencies in education prevent them from taking due advantage. These considerations gain force when it is remembered that they apply not to the treatment of hysteria alone, nor even to that of the neuroses in general, but to a much wider range of morbid conditions than is commonly imagined.

E. W. Taylor has recently entered a plea for a modified form of psycho-analysis, his view being that since the method has proved so valuable it should be simplified so as to bring it within reach of those untrained in clinical psychology. It does not seem even remotely probable that the attainment of this desideratum is in any way practicable, for advancing knowledge of the subject has only made more evident the complexity of the factors involved, and has necessitated a corresponding elaboration in the technique of the method. The complexity lies not in the method but in the material, and the difficulties in the way of simplification, therefore, are inherent, not accessory. The illustrative examples brought forward by Taylor are not at all to the point, for they are not examples of any kind of psycho-analysis, but of the simplest forms of "explanation." They suffer in consequence from the disadvantages remarked on above in the discussion of this topic. Taylor's proposition whould have been more valuable if he had directed attention to the fact that simple advice on the part of a physician versed in the principles of psycho-analysis is often of the greatest practical benefit to a patient, apart from any question of treatment, and may save him from much later suffering; this indeed was what was intended above in urging on the medical profession in general the importance of a knowledge of the subject.

It has further been said that the time involved in psycho-analytic treatment precludes, at any rate, the application of it to hospital and dispensary patients. It is, however, evident that this is entirely a matter of will, not of means. If it is considered desirable to do the best for such patients a way will be found, though it would certainly necessitate the training of a considerable number of psycho-analysts. One only need recall the history of the development of the sanatorium treatment for tuberculosis. As soon as it was realized that without this treatment the best was not being done for the patients, the material difficulties were overcome, special buildings were erected, physicians and nurses trained along suitable lines, and a system of treatment instituted that has not many parallels in its expense and complexity. For psycho-analysis, on the contrary, all that is needed is physicians, and in ability to alleviate suffering and promote general social efficiency the psycho-analytic method will bear favorable comparison with any treatment of tuberculosis.

Finally, it is not only desirable, but indispensable, that something should be said on another matter, the relation of the clergy to the medical profession. As is well known, clerical pretensions in regard to the question of disease have been revived of late in a rather prominent way. We refer not only to the cruder and not generally admitted claims of the Emmanuel movement, but to efforts made among more responsible circles, of which the following instance may be quoted: A special committee, representative of the clerical and medical professions, and having as Chairman the Dean of Westminster, was formed in England in 1910, and, after holding twenty-two sessions, has issued a report of their conclusions.[1] One of the chief of these is that the ministrations of the clergy may be of most direct assistance in nervous or mental cases, provided these are open to benefit from religious influences. The report goes on to say: "The medical practitioner should realize that . . . in certain cases patients can be approached from the spiritual side when ordinary methods of medical suggestion are more difficult to apply. Such cases are more often of the nature of functional disorders, minor obsessions, or vicious habits." The names are not divulged of the physicians who thus acknowledge the bankruptcy of their professional abilities, but the statement seems to represent a very general medical opinion, and is certainly an honest expression of what are pessimistically felt to be the limits of therapeutic possibility. To remedy this state of affairs by the more scientific proceeding of dealing with the defect in medical education discussed above does not seem to have occurred to them. Now it is not the place here to consider the value of clerical encouragement in the case of organic disease, nor is this a matter on which there is much difference of opinion, but it must be protested that it is no longer necessary to have recourse to another profession to aid us in performing what is strictly our own duty—namely, the treatment of mental disorders.

[1] British Medical Journal, March 23, 1912.

The church has occupied this field for thousands of years, but the day has now come when exorcism and prayer must yield the place to scientific therapeutic measures, here as in the treatment of organic disease. It is very rarely desirable that the task of correcting and modifying morbid mental processes should be shared by a physician and a clergyman, for it is peculiarly necessary here that the patient should be led by a single hand, with undivided authority and consistently harmonious aim. The attitude of a psychologist and a clergyman must inevitably differ in many, often important, respects, both because the one is versed in the subject in question while the other is not, and because the two start from quite different premises.

It is true that a few clergymen, for instance the Rev. Pfister and the Rev. Keller, of Zurich, have undergone an adequate training in clinical psychology, and have accomplished excellent results in the scientific correction of aberrant mental tendencies. They are, however, exceptions, and it is to be hoped that they will remain so, for it is a dangerous precedent to equip men, however satisfactorily, for the treatment of some morbid conditions and not for that of others. Properly to estimate the significance of intercurrent physiological happenings, even granted that a preliminary diagnosis of hysteria has been correctly made for the clergyman by a physician, is possible only for someone who has completed a general medical training. As the matter stands at present most physicians are trained on the physiological side only, and not on the psychological, while most clergymen are not on either. If mental disorders are to enter into the province of the physician as definitely as physical ones have, and if encroachments from without are to be successfully resisted, it is certain that medical education will have to be extensively widened so as to include an adequate training in clinical psychology.

Anxiety-hysteria.—This term was coined by Freud, some four years ago, to denote certain nervous states that bear the closest relation to both the classical hysteria and the anxiety neurosis; they may be said to lie midway between these two conditions, with which we are already familiar. The cases of anxiety-hysteria are commonly grouped together with those of other conditions, the pathology of which is quite different, and are called either neurasthenic or psychasthenic. The symptoms comprise various phobias, together with the symptoms described above as characteristic of anxiety neurosis. Not all phobias belong here, some for instance being manifestations of the obsessional neurosis, but the greater number do. Nine-tenths of all cases of "nervousness" in children are of this nature, and the malady is also very common among adults, particularly women.

Relation to Conversion Hysteria.—The relation between anxiety- and conversion-hysteria is as follows: Both are the result of the same train of psychopathogenic agents, the roots of which lie in childhood, and they are thus merely different manifestations of the same malady. The essential difference between them is that in conversion-hysteria the productivity of the morbid tendencies leads to the creation of

physical symptoms, by the process of conversion above described, while in anxiety-hysteria its activity remains in the mental sphere, and leads to the creation of specific phobias. It is true that in both there may be physical symptoms, paralysis being an instance in the one case and palpitation in the other, but these are quite dissimilar in kind. In conversion-hysteria the physical symptom is the external symbol of a group of ideas, while in anxiety-hysteria it is merely the expression, the necessary physiological accompaniment of a given emotion; in the former case the symptom has a precise mental meaning, in the latter it has none. Both kinds of symptoms are of psychogenetic origin in the sense that they are both ultimately due to morbid mental processes, but in conversion-hysteria these processes directly produce the symptom, whereas in anxiety-hysteria they produce only a certain emotional state, anxiety, which happens to have physical manifestations.

Relation to Anxiety-neurosis.—The relation between anxiety-hysteria and the anxiety neurosis was briefly indicated in the discussion of the latter. In the former condition the process of repression, which is a normal accompaniment of childhood development, has not succeeded in bringing about the substitutions (sublimations) that characterize mental health and harmony. Deprived, at least partially, of this indirect means of gratifying the primary instincts, the person suffers more than the normal from any accumulation of sexual tension that may occur later. Further, the formation of various inhibitions may even hinder the ability to experience gratification when the suitable opportunity presents itself, leading thus in men to psychical impotence, and in women to sexual anesthesia; this, of course, may be either relative or absolute. The repressed sexual feeling manifests itself consciously as anxiety, either intermittent or chronic, as was explained in reference to the anxiety neurosis. This anxiety, however, instead of being general, as in the latter condition, becomes localized on to a given idea which symbolizes a sexual situation. The patient suffers from inhibition and anxiety in the attempt to perform a given act, such as that of crossing an open space, just as though he were a nervous person facing a sexual act to which he is not equal.

The morbid fears are thus the expression of buried wishes; with many of these this is popularly recognized, as is seen, for instance, in the jokes perpetrated about the maiden who before retiring looks under the bed to see if there is a man there, a practice she usually renounces after she has found the man of her choice. The function of a phobia is evident; it is an inhibition that serves as a barrier to prevent an anxiety attack. Thus someone who is subject to an attack of this sort when he stands at the edge of high places becomes afraid of high places, and even of the idea of them; the fear guards him from the danger of ever exposing himself to an attack. The psychological structure of a phobia is highly complicated, and is exactly the same as that of any other hysterical symptom. In it are symbolized both a number of unconscious wishes and the corresponding repressing forces; it is, in other words, a compromise-formation.

Treatment.—The treatment of anxiety-hysteria is precisely the same as that of conversion-hysteria, with the addition that the anxiety itself has also to be treated. The reader is, therefore, referred to the sections on the treatment of hysteria and anxiety-neurosis, both of which apply in every detail to the present condition.

Obsessional Neurosis.—This disorder, sometimes also called "compulsion-neurosis" (*Zwangsneurose*), is, like the last, grouped by the French school under the heading of psychasthenia, and is often to be found discussed under neurasthenia in medical text-books. As has been recognized in Germany for nearly fifty years, however, it constitutes a quite distinct neurosis, though it may sometimes be complicated by the presence of neurasthenic or hysterical manifestations. The diagnostic feature of the neurosis is the investment of various mental processes with a feeling of compulsion (*Zwang*), as though the patient is being impelled against his will by an external force, and has lost the normal control over his mental processes.

Symptoms.—The symptoms are sometimes divided into motor (obsessive acts, impulsions, *Zwangshandlungen*), sensory (obsessive hallucinations or sensations), ideational (obsessions, *Zwangsvorstellungen*), and affective (obsessive emotions, particularly doubt and fear). The large group of tics ("habit spasms") are probably also of the same nature. Familiar examples of "compulsion" in a slight degree are the obsessive impulses to touch every other rail of an iron fence as one walks past, to step on the cracks between the flag-stones of the pavement, or not to step on them, and so on. The person experiences a restless need in the given direction, and this is completely assuaged by performing the act, until a little later the same need recurs. In severe cases the patient is so dominated by his obsessions and inhibitions that he is quite unable to devote his attention to any of the duties of life. From a social point of view there is, apart from actual insanity, no more paralyzing mental condition. The patient rarely becomes insane, though he is often thought to be, and many cases are to be found in asylums. The mental torment is at times indescribably great, and the patient may not have a single moment free from his haunting obsessions, inhibitions, and fears. The malady is a very common one; it affects men a good deal more frequently than women, and is most often found in unusually intelligent persons. For a further description of the clinical features the reader is referred to Loewenfeld's book mentioned above.

Pathology.—As to the pathology of the neurosis the following may be said: The essential morbid feature is evidently the excessive psychical significance attaching to certain thoughts. The patient is compelled to carry out a given trivial act, or a banal train of thought, with a feeling of urgent necessity, of absolute importance, that would be more appropriate with something on which his life depended. The mental processes in question have somehow acquired an overcharge of importance, an excessive psychical accent, that does not properly belong to them. It is really a matter of little consequence which

particular collar or tie a man puts on in the morning, but an obsessional patient may spend over an hour in deciding, paralyzed with doubt, just as if he were deliberating on a most delicate and vital decision. The problem therefore is, whence comes this excess of psychical significance? The answer is, it is a displacement from truly significant processes in the unconscious. This source might, indeed, have been suspected from a very typical feature of most obsessions, namely, the dissociation of them from the main personality. The patient usually regards them as something forced on him against his will, not as any integral part of his ego. He carries out obsessive acts not because he wants to, but because he must; because he has no peace unless he does, because he cannot control, except for a brief interval, the impulse. As was insisted upon above, dissociation is eminently characteristic of unconscious mental processes, so that the feature in question is quite intelligible.

Through his psycho-analytic investigations Freud came to the conclusion that obsessive processes represent the return, in a distorted guise, of self-reproaches dating from childhood, and buried since then until the outbreak of the malady. They always refer to active sexual performances or tendencies. The pathogenesis of the condition differs from that of hysteria in a number of important respects, which cannot be discussed here; it is much more complicated than that of the latter. There occurs early in life an exaggerated divorce between the instincts of hate and love, and the conflict and antagonism between the two dominates the most important reactions of the person. A fundamental state of doubt, an incapacity for decision, results from this paralyzing conflict, and the compulsion is an overcompensation for this state of doubt. The patient oscillates between the two conditions of not being able to act (when he wants to), and being obliged to act (when he doesn't want to). The symptom symbolizes the conflicting forces. These are not, as in hysteria, fused into a compromise-formation, but come to separate and alternating expression; one set of manifestations, therefore, symbolizes the repressed forces, another the repressing.

Treatment.—Practically all that was said on the subject of treatment in connection with hysteria also holds good here, so that the reader is referred to that section. Physical measures are almost altogether useless with the present condition. Suggestion is much less effective in the treatment of the obsessional neurosis than in that of hysteria. There are several reasons for this: One is that such patients are often very little susceptible to suggestion or hypnotism. Another is the extraordinary productivity of the neurosis; new symptoms are created as fast as the old ones disappear, within a few minutes, so that it becomes impracticable to try to remove them seriatim by means of individual suggestions. Speaking roughly, it may be said that there are in this respect two kinds of symptoms, one that is absolutely refractory to any suggestion, and another that readily yields but is just as readily renewed.

On the other hand, the neurosis is particularly well suited to treatment

by psycho-analysis, and some of the most brilliant successes of this method have been achieved in connection with it. The superiority of psycho-analysis over other methods is much more striking with the obsessional neurosis than with hysteria. There are some respects in which the technique of the method differs from that as used with hysteria, but it is not expedient here to enter into the details of this. It should be added that it is very desirable for such patients to be treated early in the course of the disease; they often refrain from seeking medical advice in the early stages, not recognizing the pathological nature of the manifestations, and when it has been allowed to go on to a late stage the task of remedying it becomes much more formidable.

PROPHYLAXIS

The great progress that has been made of late years in our knowledge of the nature and causes of the psychoneuroses has proved of even greater value in regard to prophylaxis than to remedial treatment, and a stage has already been reached where it is hardly an exaggeration to say that with due care the development of a neurosis can in most cases be prevented.

There are three aspects to this matter of prophylaxis, those touching education, social organization, and individual hygiene respectively. Of the last of these little remains to be said. With the "actual-neuroses," the specific factors discussed in connection with them should so far as possible be avoided, particularly by persons predisposed by errors of development, which often show themselves in minor manifestations often not definitely morbid (oddities of character, inadequate emotional reactions, and so on). Persons who already show a tendency to the development of a psychoneurosis need to be warned against exposing themselves to the action of adjuvant factors, and to situations for which they are ill-adapted. These cannot here be specified in detail, not only because they vary from case to case, but also because the understanding of many of them presupposes a considerable experience of clinical psychology.

Marriage.—A simple example may be chosen: In spite of the prevailing view to the contrary, it is always a hazardous proceeding for any "nervous" person to marry. The latent possibilities of married life may prove such as to demand a robust nervous and mental constitution to endure them without harm, and a "nervous" person, whether man or woman, is taking a considerable risk in facing the unknown possibilities of psychical trauma that pertain to married life. The outcome may be favorable if the concatenation of circumstances is propitious; it is more often dire and even disastrous, and in any case it is extremely difficult to predict. This statement, of course, applies only to those patients who have not been adequately treated.

Adequately to discuss the subject of social organization in its relation to the neuroses would necessitate a chapter at least as large as the

whole of the present one, and we shall confine ourselves to one or two general remarks. It is becoming increasingly evident that the experience gained from the study of psychopathology will have to be taken into serious consideration by those who wish to form sound judgments on various social problems Our knowledge is perhaps not yet ripe enough to lend itself to ready generalizations, but there is no doubt that the psychopathologist is forced to recognize the significance of certain aspects of these problems that are commonly ignored. He can already, for instance, definitely point to the injurious effects of unhappy marriages on the future development of the children, a matter that has an obvious bearing on the problem of divorce, to the seriousness of protracting indefinitely a life of sexual abstinence, particularly in the case of persons of a certain constitutional type, to the illusoriness of marriage being necessarily a cure for the woes of celibacy—the one state is often as hard to bear as the other, and to the impossibility of enforcing without harm a uniform moral standard and mode of living. To demand a uniform and inelastic standard in the field of emotion being as preposterous and as untrue to the considerations of reality as it would be in the field of intellect.

Education.—The prophylactic results most readily to be achieved are those in regard to education, for the conclusions dictated in this connection by psycho-analysis are both important and easy of application. Of these only two will be selected for comment here—namely, the importance of preventing precocious sexual excitation and undue repression respectively. As regards the former the chief points that issue from psycho-analytic investigations are that this occurrence is possible in ways that are commonly overlooked, and that it is a matter of unsuspected significance for the child's later development. It has been found that pleasurable sensations, of a vaguely sexual nature, can be aroused at a much earlier age than is generally recognized, and, occurring as they do in relation to the parents—at a period long before the child knows anything about the cardinal distinction between relatives and other people as objects of sexual interest, they often pave the way for later unconscious fixations of feeling and moral conflicts of central importance for the development of a neurosis. Such sensations may be excited through overfondling on the part of a parent, through excessive scrupulousness in matters of cleanliness—often the consequence of a neurotic tendency in the mother, through allowing the child to develop the habit of stilling all his desires and deadening all his discomforts in the satisfying rhythm of buccal activities—through his being allowed to sleep together with older children or grown-up people at an age when this is thought not to matter, and, perhaps commonest of all, through his overhearing or actually witnessing conjugal embraces, the meaning of which may escape him though the impression produced on his mind is lasting.

Sexual Education.—The other conclusion referred to is based on the knowledge that excessive reactions to sexual happenings in early life, in the form of undue sense of guilt, shame, terror, and remorse,

play a most important and indeed an essential part in the development of psychoneuroses. This is one of the most cogent reasons why enlightenment on such topics should proceed along different lines from those now customary. The rules for the guidance of the parent in this matter are perfectly simple. No enlightenment is ever necessary, or desirable, until the child spontaneously demands it, and even then only so far as he does demand it, there being also of course due regard for his capacity of understanding; with most normal children the process will gradually be passed through between the ages of four and six. After this age it is usually too late, for the child, if he has been rebuffed, will certainly have formed his own conceptions and phantasies on the subject unknown to the mother, and, though these are generally buried and forgotten within the next few years, they continue to exert indirectly an important influence on his mind. Under no circumstances should the child be lied to in such matters, or the subject obviously evaded. A healthy, natural attitude should be instilled into his mind from the first, not so much by the mother's inculcating positive tendencies as by her avoiding manifestations of undue reprobation and sense of sinfulness.

Simple as these rules are the writer is fully cognizant of the difficulties in the way of getting them appreciated. In an age when the topic of sex is shunned like the plague, almost the only open expression of opinion that can be elicited on it is the one that lays stress on the sinfulness and danger of thoughts, let alone acts, concerning it. The epidemic of "sexual enlightenment in the schools" that is at present sweeping over most civilized countries is unduly preoccupied with the task of telling children what they mustn't do, and how wrong sexual functioning is except under certain circumstances. It is to be anticipated that the beneficial results of this movement will be outweighed by the harmful ones, and as a weapon in the fight against the neuroses any favorable influence will be negligible. Neurosis is the price, and is far from being the only one, that we pay for our hypocrisy, for our intellectual and moral obliquity.

APPLICABILITY OF PSYCHO-ANALYSIS TO OTHER CONDITIONS

The writer has been asked by the editors to say something about the use of the psycho-analytic method in other conditions than the neuroses. These may be divided into psychoses and a miscellaneous group comprising various habits and aberrations.

Dementia Præcox.—Little can be done in the case of dementia præcox except in the earliest stages. Here it is often possible by means of psycho-analysis to remove certain symptoms and to improve the patient's general state to a considerable extent. In exceptional instances the patient may be restored to apparently normal health, certainly to full activity. It is clear, however, that one cannot pretend to have thereby cured the disease itself, and in all probability the patient will

relapse at some later date. It further seems likely that the effect of the analysis may occasionally be to make the patient's condition worse, particularly when used without due precaution; but it must be remembered that the malady is a desperate one, where it is therefore justifiable to run a certain amount of risk. The best results have been obtained by Jung, who has had an extensive experience in this field.

Manic-depressive Insanity.—A much more promising scope for therapeutics is offered by manic-depressive insanity, particularly in the cyclothymic variety; the treatment has of course to be carried on during an intermittent phase. Investigations by Abraham, Maeder, and the present writer have shown that many cases of this nature can be beneficially influenced to a remarkable extent, far more than might have been thought likely. Abraham in particular has thrown much light on the psychology of the disease. He lays special stress on the resemblance between it and that of the obsessional neurosis. Brill has pointed out that some cases thought to be of this kind prove on analysis to be cases of anxiety-hysteria.

Epilepsy.—The question of epilepsy is difficult to discuss in this connection because of the present uncertainty as to the nosological status of the disease. It is considered that several different conditions are now included under this term. Probably some of these can be therapeutically influenced and others not. At all events it is quite certain that psycho-analytic treatment can greatly benefit, and even cure, many cases where the diagnosis of epilepsy has been made by the most experienced authorities. Sadger, Stekel, and others have published cases of this kind, and much work has been done in the direction of defining the characteristic pathogensis of the disease. It has been known for some years that perfectly typical epileptic fits may occur in conditions that are of purely psychogenic origin, and it would be a great gain if we could clinically distinguish these from the graver forms where mental therapeutics can accomplish nothing. It need hardly be said that psycho-analysis is of no avail in cases where mental deterioration has set in.

Alcoholism.—Psycho-analysis is almost useless in cases of alcoholism where there is a definite psychosis present, and it is highly probable, in spite of the popular view to the contrary, that the alcoholic psychoses are really instances of dementia præcox, epilepsy, and other conditions, that are merely complicated by alcoholism. This remark does not, of course, apply to the acute toxic states, such as hallucinosis. The simpler forms of alcoholism, such as dipsomania, lend themselves excellently to psycho-analytic treatment, and many gratifying results have already been obtained. Abraham, Freud, and Ferenczi have shown that the drinking habit is determined by complex mental factors, the psychology of which is now well understood, and which respond to psycho-analysis as definitely as those underlying the symptoms of a neurosis. Just as here, there are accessory factors as well, such as temptation, opportunity, etc., but no one will become an excessive and uncontrollable drinker from these alone.

Drug Habits.—The same remarks apply equally to drug habits. With both drugs and drinking habits the chief morbid factor is repressed homosexuality, in both sexes. The poison acts by breaking down to a greater or less extent the barriers that prevent the affect of this tendency from entering consciousness, and once the person has become accustomed to this they find it exceedingly hard to do without. A great effort of renunciation, aided by various suggestive influences, may succeed in combatting the need, but that the underlying tendency is still present is shown by the well-known precariousness of the results obtained in this way. Psycho-analysis, on the other hand, by laying bare and translating into consciousness the roots of the morbid tendency, gives the patient a much greater control over it, and leads to correspondingly better results.

Homosexuality.—Homosexuality has, on account of its great frequency and the social suffering it entails, given rise to considerable discussion as to the possibility of influencing it therapeutically; much hope, for instance, was built on the early work of Schrenck-Notzing with hypnotism. The investigations by means of psycho-analysis have established two matters in regard to homosexuality, first, that it is a complex product of several factors and not a simple manifestation of a congenital abnormality, as has previously been thought; and secondly, that the psychogenesis of it is not always the same, there being certain well-defined types. It has further been shown, particularly by Sadger, that the psychogenetic factors may be influenced by this mode of treatment, so that the condition is no longer to be regarded as an irremediable one. More definite statements cannot be made without entering on a discussion of the different types.

Sexual Perversion.—Psycho-analysis is quite as effective in cases of sexual perversion as in those of inversion. From the point of view of psychogenesis the different forms of perversion may be divided into two groups, those arising as the result of a distorted psycho-sexual development, instances of which are fetichism, bestiality, and necrophilia, and those consisting of a fixation and exaggeration of a single biological component of the instinct, such as with sadism, exhibitionism, and so on; even with the latter group it is found that the fixation is not altogether due to the inheritance of a specially strong tendency corresponding with this component, but is brought about as the result of an interaction between the latter and various external influences. The exceedingly close relationship that Freud has shown to exist between psychoneurotic symptoms and sexual perversions, one representing the negative the other the positive side of the same forces, makes it intelligible that a method devised for the treatment of the one should also be of some service in dealing with the other.

Criminality.—A matter on which less definite statements can be made is that of criminality. Psycho-analysts have not occupied themselves immediately with the treatment of criminals, for obvious reasons, but Stekel, Wulffen, and others have elucidated the origin and significance of many criminal tendencies that have not openly manifested

themselves. It has been shown that the roots of these are to be found in the unconscious, that traces of them are widely present in the normal and that they are closely intertwined with the other aberrant tendencies that more directly concern the therapeutist. The field is therefore a very promising one for psycho-analytic research, and it is to be anticipated that further work along these lines will contribute much to our knowledge and control of criminality.

Miscellaneous Mental Anomalies.—We have last to mention a miscellaneous group of conditions that are not usually regarded as diseases even in the wide sense of the term, but which are of considerable social importance. We refer to various character abnormalities, reactions, and traits, which when developed beyond a certain point can lead to much suffering and also seriously impair the usefulness of the person concerned. Some of their effects are marital incompatibility and unhappiness, social friction, inability to live harmoniously with other members of the family, difficulty in adjusting one's self to one's work or to the various duties and exigencies of life, and so on. The character abnormalities that lead to these results take their origin in childhood tendencies that have been insufficiently controlled, and which, though now unconscious, produce an inner disharmony in the person's mind. Such cases do not commonly present themselves to the physician's notice, unless they are complicated by a definite neurotic state, but a clinical psychologist has many opportunities to investigate conditions of this sort. Experience has shown that a psycho-analysis of the person's innermost tendencies is often of the greatest benefit in giving him a better control over them, with a correspondingly heightened capacity to adjust himself to the necesssary situations of life.

In the writer's opinion, founded on experience, the psycho-analytic method of treatment is as superior to all others in dealing with the conditions referred to in the present section as it is in regard to the psycho-neuroses proper. It is a matter of special welcome that there is now within the reach of the medical profession such a powerful weapon for the handling of a group of maladies which in the past have been attended by more discredit than renown.

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CHAPTER IX

TRAUMATIC NEUROSES AND PSYCHOSES—OCCUPATION NEUROSES

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Introduction.—The subject of the neuroses and psychoses produced by various traumata presents many difficulties, especially in their etiology, and yet an understanding of the etiology and nature of these disturbances of physical and mental functions is essential for the proper treatment of these conditions. By traumata we include not only severe organic injuries of various parts of the body, but also the more vague changes produced by various degrees of concussion of the brain, and also the effects of emotions produced at the time of injury, either by themselves or in combination with organic injuries.

The subject is also complicated by the fact that in many of these cases we are not dealing with a pure neurosis, such as we often see in cases where no injury has been received, but with a combination of certain nervous and psychical symptoms with more or less obscure physical injuries which, often overlooked, may be the cause of the pains and other nervous symptoms which are then to be considered as secondary phenomena. This is especially true of the obscure injuries of the spine which have been described so often as traumatic lumbago, the cases of traumatic spondylitis and injuries of the sacro-iliac synchondrosis, as well as those produced by powerful currents of electricity, in which the psychical symptoms are often combined with organic ones, and even with organic ones which cannot be demonstrated. An instance of this was seen by the writer a number of years ago in a case which was repeatedly examined by various members of the hospital staff, none of whom were able to prove the existence of any organic disease, the case being considered by all of them as one of hysteria until there developed some time after the trial of the suit for damages a partial atrophy of the optic nerve and other symptoms, which showed the case to have been one of slowly developing multiple sclerosis.

Another thing which complicates the subject is the fact that we undoubtedly have an actual increase in the number of accidents in the development of modern life with its multiplication of machines in various industries, its increase of rapid transit, and consequent multiplication of trains, running at greater and greater speeds; also the use of streets and highways by electric cars, of constantly increasing size and weight, often running at the speed of ordinary railway trains, to say nothing of the tremendous growth in the use of motor vehicles,

both for pleasure and business, during the last few years, which add to the risks of daily life. Then, too, the modern belief in the responsibility of employers, public carriers, and owners of motor cars for money losses and suffering produced by accidents, with the consequent crowding of the courts with suits for the recovery of damages, has unfortunately at times introduced an element of acrimony into the discussion of the nature and origin of these neuroses that has been disadvantageous for their proper understanding.

Still another thing which has tended to cloud the solution of the various problems presented to the physician by these functional disturbances of the nervous system has been the tendency of attorneys, both for plaintiffs and defendants, who are so frequently large corporations of one sort or another, to employ as witnesses in these suits, physicians whose points of view of the nature of these diseases, sometimes conscious, and at others unconscious, favor the theory which the lawyers wish to persuade the jury to accept.

Again, one might consider under the head of the neuroses a number of functional nervous troubles, or at least nervous troubles with no known pathological basis, such as chorea, epilepsy, or paralysis agitans; this, however, would enlarge our field to an unwarrantable extent. Also among the psychoses might be included cases of general paresis, which not infrequently shows its beginning after some injury, especially one in which there has been some degree of concussion of the brain.

In this latter case we have to do with a psychosis where there is invariably a progressive organic disease of the brain, which is most probably always due to a preceding infection with the Treponema pallida; and this physical change in the brain is accelerated or its time of development determined by the circulatory changes and lowered resistance of the tissues produced by the accident, the course of events probably being the same as is seen in some other organic diseases of the brain following injuries of this organ, such as the development of tumors.

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Organic Changes.—Friedmann's Complex.—A few words, however, under the head of traumatic neuroses should be given to the symptom-complex described by Friedmann, which he considered to be a *vasomotor disturbance in the brain.* These cases are the ones in which after a more or less severe concussion of the brain, with a loss of consciousness or confusion, vomiting and shock, there persist for some months, or occasionally for years, symptoms of headache, quite often with more or less sharp pains coming and going; dizziness, which most often comes in attacks, usually produced or aggravated by changes in position, such as stooping, rising from a lying position, and so on; ease of fatigue, for physical, but especially for mental work; and often irritability, feebleness of memory; changes in character, such as moodiness and eccentricity, and very frequently increased sensitiveness to exposure

to the sun, or diminished tolerance to alcohol, so that they become much more easily intoxicated. Weitz has recently shown also that there is an increase in the tension of the cerebrospinal fluid in these cases.

In this syndrome, which very frequently appears after concussion of the brain as well as after more severe local or general injuries, such as contusions and lacerations, we often have more than a mere neurosis: minute areas of softening are present, especially about the bloodvessels. But in certain cases where organic changes are absent, Friedmann's explanation of a vasomotor disturbance of the circulation in the brain is the most probable one, while in others, especially where the symptoms persist for a long time, we probably have to deal with a neurosis, and the persistence of the more purely subjective symptoms, such as the headache and dizziness, may resemble the persistence of tenderness at the point of injury where a blow was received, or the sensitiveness of the back following the injuries of muscles and ligaments from a sprain at the time of the accident, and be due to the formation of a fixed idea. This is rendered more probable by the occasional existence of similar symptoms in cases where there has probably been no concussion of the brain, as well as by their appearance in cases of a neurosis, where no accident has happened. It is also to be remembered that the persistence of these symptoms after concussion of the brain is favored by the presence of arteriosclerosis of the cerebral vessels.

Other Organic Changes.—In considering the legal question of responsibility after injuries in such cases it must not be forgotten that the severer injuries, especially where there has been a cerebral concussion, favor the development of degenerative changes in the bloodvessels, both in the cerebrum and generally, partly as a sequence of the disturbance of nutrition consequent upon the concussion and partly from the change of habits, the loss of activity, impairment of the appetite, and other similar circumstances incident to a condition of invalidism following injuries. That cerebral arteriosclerosis is only an occasional cause of these vasomotor symptoms is shown by their presence in young persons with considerable frequency, though not as often as in persons at the period when degenerative changes of the bloodvessels are presumably present because of their age.

Epilepsy.—Occasionally cases of epilepsy are seen following concussion of the brain, and this either with or without the presence of the circulatory disturbances just described. These are usually dependent upon disseminated or local foci of organic destruction in the brain, and the convulsions may be local in character or general, depending upon the seat of the lesions or their size, or both. In these cases the physician must be careful in regard to two points in particular: (1) the confounding of hysterical convulsive attacks with those of epilepsy, a mistake which is more easily made than would be supposed, as it is rare for the physician to have the opportunity of observing the patient in an attack; and (2) which is probably more common,

in being deceived by the story told and ascribing to the accident a condition which has existed before. Oppenheim also describes a true reflex epilepsy where injuries of peripheral parts of the body may result in attacks in no way differing from cortical epilepsy. In view of the questionability of reflex epilepsy from peripheral irritation in cases where there has been no injury, such as those from phimosis, eye-strain, and other conditions which have been so often reported, where the operations for the removal of the exciting cause have given no relief, or only temporary disappearance of the convulsions; and in view of the frequency of epilepsy and its well-known erratic course, it is necessary to regard such cases with extreme skepticism. Bailey states that he has never yet made the diagnosis of reflex epilepsy, and the writer has had a similar experience not only in regard to cases where an injury was supposed to be the cause, but also in other cases where no injury had been received.

General Division of Subject.—In general, writers are practically agreed that the functional neuroses produced by accidents should be divided into simple hypochondriacal states, neurasthenia and hysteria, and mixed forms, which latter are fairly common. The history of the development of our knowledge of these diseases is interesting, but would take us too far from the purpose of this work to be treated of at any length. It is sufficient to say that while formerly supposed to be due to organic changes in the brain and cord it came to be recognized through the studies of many men, especially during the past thirty years, from Erichsen through those of Charcot, Leyden, Erb, Walton, Putnam, Oppenheim, Knapp, Bruns, and many others, that many of these cases are purely functional; though again from this class cases are being taken that a short time ago would have been considered functional, such as have already been mentioned in the case of the more obscure injuries of the spine. Charcot not only recognized that many of these were functional nervous cases, and emphasized the alarm, fear, and anxiety in their causation, but insisted that the sensory changes were those of pure hysteria, and nothing but hysteria, and not at all a hitherto undescribed disease picture. In saying this it is far from asserting that unanimity of opinion has been reached, either in regard to the mode of origin of these cases, the essential character of these neuroses, or on other questions, and in this statement we leave out of consideration the disagreements that have arisen between neurologists and some of the writers upon the traumatic neuroses who have given little study to functional nervous diseases.

Etiology.—The discussion of the causes of these neuroses is rather closely bound up with the subject of their nature and the mode of action of the cause, but it may be summed up briefly as trauma, which may be slight or severe, and may be even a pure emotion. It will be seen by this statement that trauma in the medical sense is used widely, to include not only physical injuries of various sorts, but also psychical injuries, in which chiefly fright or fear, but also other emotions, as anxiety and worry over the health, the ability to work again, and

the existence of the family are included. To this some would add the worry over the outcome of the lawsuit for damages, which has given rise to calling some of the symptoms "litigation symptoms" and similar terms; and in various countries there have been long and vigorous discussions over these and the possibility of simulation, both of the disease and of single symptoms. It will suffice for the present if we say that here again the general opinion has in the course of time come to be that simulation of the disease as a whole is exceedingly rare, though it is fairly common with these neuroses as well as with various organic diseases to have an accident given as the cause for the purpose of fraud in collecting damages, where the disease has existed before the injury, or been due entirely to other causes.

That in stating trauma to be the cause of the various neuroses following accident, we must include psychical traumata, is shown very plainly by a number of facts. Perhaps the most important of these is the fact that we frequently see the same forms of disease where there has been no physical injury, and often after a single emotional shock; and also hardly less important, the fact that in the neuroses following accidents there is frequently entire lack of relation between the severity of the injury and the disease. For example, Oppenheim speaks of hysteria following a prolonged crushing of the fingers, and the writer has seen a case arising in a similar way, and another of hysterical paraplegia following a fall in a sitting position, with only slight bruising as a physical injury.

Symptoms.—Further, physicians who have studied these functional neuroses coming on after injuries are generally in agreement that exaggeration of the symptoms and less often the simulation of a single symptom is relatively frequent.

Abnormal Suggestibility.—In most of the cases of these forms of disease there is an abnormal suggestibility present. Charcot was among the first to call attention to this, and thought it was through suggestion that the accident determined the symptoms, but as identical forms of disease are seen where the patient has been unconscious, either through concussion of the brain, or from a shock of electricity, this is probably not the case, and at least is not invariably the case. To claim, as some writers have done, because there is an abnormal suggestibility, that all the symptoms are caused by suggestion, is also going too far, and to claim, as others have done, that this suggestion arises from the claim for monetary damages, is puerile, and as Bruns remarks, if true, would mean in the case of children, that the parents should have the symptoms; while, as a matter of fact, cases quite analogous to those seen in adults are frequently seen in children, the chief difference being that in children the neurasthenic and hypochondriacal forms are exceedingly rare, and practically are not seen, and that more of the cases seem to be curable. Other facts which strongly disprove such a claim are that these neuroses show practically similar symptoms, though occurring in various lands and in different peoples, and also by the well-known fact that such troubles are frequent following

accidents where no claim for damages has been made, or could be made, a thing which Oppenheim and Bruns both state, and which is confirmed by the writer's statistics from the Boston City Hospital.

At this hospital, from May 3, 1901, to April 15, 1907, in the Out-Patient Clinic for Diseases of the Nervous System, the diagnosis of hysteria was made in 105 cases. Of these 105 cases, 23 followed accidents of various kinds, a percentage of 21.9. In these 23 cases there were three in which an action for damages was pending, while in three others, though nothing was said about a lawsuit, it was probable or possible that one would be brought. In nine cases nothing could be inferred in regard to the possibility of a claim for damages, and in eight, or more than a third, it was expressly stated that there was no claim for damages, or the accident was of such a nature that none could be made. In one case, which had lasted two and a half years when first seen, the accident was a fall from a stone wall, and another a fall upon the ice, in both of which there was no legal liability.

Onset of Symptoms.—The onset of the symptoms, in the neuroses which we are discussing, may be immediate or gradual. A gradual onset after injury is also seen in some of the cases where there is an organic injury, as for example with injuries of the ligaments and bones of the spine, where a traumatic spondylitis may develop slowly, or again in those changes in the bones of the spine, which result in ankylosis, such as occur in the hypertrophic forms of osteitis of the spine. The bruises, sprains, and other organic injuries make work impossible, and then, secondarily, other psychical and emotional elements are apt to be developed which aid in the production of a neurosis. Frequently, anxiety is the most important of these, and tends most often to produce hypochondriacal conditions, or neurasthenic ones, and especially those with depression. Not infrequently after the disappearance of the immediate effects of the injury the physician urges the patient to return to work, and he, thinking he has not entirely recovered, does so with some unwillingness. The illness has enfeebled him somewhat, so that in consequence the work seems much harder to him than formerly. Then, too, if the work brings him to the place of the accident, or places him under circumstances similar to those in which the injury occurred, it may be that the terrifying emotions which came with the accident recur through the association of ideas, and the patient becomes anxious, dizzy, and faint, and is forced to stop work and return home. In this way the idea of incapacity for work is developed or strengthened, and the development of symptoms in the psychical sphere is favored. When these are fully developed all attempts to improve the patient by accustoming him to work may be made upon an unwilling person, and the patient has become incurable, partly through this unwillingness, and partly through the direct action of disturbing emotions, as fear, the hypochondriacal fear in regard to danger to life and health from the disturbing and distressing symptoms, worry over the inability to work, and anxiety in regard to the future of those dependent upon the earning capacity.

These mental factors are certainly much more potent in most cases than those arising from the desire for money compensation, and in cases where there is no such claim, are evidently sufficient to produce the whole mental picture of the neurosis. Thus we see that the chief psychical factors in the production of the hypochondriacal and neurasthenic states are the terrifying circumstances of the accident, the pain, and the hypochondriacal fear immediately after the injury, reënforced by the confirmation of these fears by the subsequent course of the symptoms. The fact that these neuroses frequently develop gradually, and the ignorance of the psychical processes concerned in this development accounts for much of the misconception in regard to their nature and the frequent statements in regard to simulation of the disease, or its arising solely from the desire for pecuniary recompense. This view is apparently supported by such things as that the injured person went quietly home, or even returned to work after the injury, either the same day or the next, and that the illness first began a few days later, and the full picture of the neurosis only developed perhaps after several attempts to work.

Neurasthenic Neurosis.—The essential symptoms in the neurasthenic neurosis following accidents are chiefly those of irritability or weakness of the nervous system, in a large sense, and most frequently these are seen as abnormal susceptibility to fatigue, loss of interest and of power of mental concentration, often depression, irritability, loss of emotional control so that the patient cries easily, and occasionally nervous unrest. These are accompanied by more somatic symptoms, such as capricious sleep; terrifying dreams; disturbances of digestion and of appetite; pains, especially backache, and vertigo or frequent headache; and very frequently the sensation of pressure or strain in the occipital and upper cervical region, which patients commonly describe as "pain at the base of the brain;" palpitation of the heart and sluggish circulation; and more rarely paresthesias of various sorts and locations. Objective signs are rare, but at times some are seen, such as tremor; exaggeration of the reflexes and increased mechanical irritability of the muscles and nerves; irritable pulse; and occasionally changes in the blood pressure, especially a diminution, as Hascovec states; dermatographia; inequality of the pupils, which may be evident only in moderate light; and especially the phenomena of fatigue, as shown in the field of vision, such as have been described by Förster, Wilbrand, and de Schweinitz. Most often the field of vision as charted shows a progressively smaller area as the examination continues, so that a spiral field may result, and Wilbrand demonstrated that the fatigued retina, which normally recovers quickly in a dark room, in these cases recovers slowly, and in some instances not even after twenty-four hours.

Of course we must recognize that many of these signs are only relatively objective, and naturally so, as strictly objective symptoms are always lacking in psychical diseases, as for instance, homicidal and suicidal impulses, and many other mental states.

Hysterical Neurosis.—In cases of hysteria following accidents also, and particularly in the mixed forms of these neuroses, we see many of the same psychical phenomena of which we have just been speaking, and in the case of one frequent symptom, both in the cases which we regard as neurasthenic, and in those we class as hysterical, we have to deal with the same phenomenon, that is, in the persistence for months and years of tenderness, often accompanied by hyperesthesia or hyperalgesia of the skin at the point where a physical injury has been received, as at the point of fracture of a rib, or over a wrenched spine, or a superficial scalp wound. Here, as has already been said, we have to do with the formation of a "habit pain," or better of a fixed idea. Aside from examples such as those just spoken of, such fixed ideas are seen chiefly in the hysterical cases, but this particular type also occurs with comparative frequency in the neurasthenic cases, where other fixed ideas are absent or rudimentary, and shows the close relationship of the two chief neuroses following injuries. In fact the differentiation of these two neuroses is to a certain extent dependent upon the weight which different observers give to certain phenomena which are observed.

Etiology.—The question of the etiology of hysteria after injuries is closely related to our conception of the nature of hysteria. In regard to this, as is well known, there is considerable diversity of view, many writers insisting that a satisfactory definition of hysteria has never been made, and never can be made. While this is true of a definition which should include all the hysterical phenomena, and at the same time give a clear definition of the mode of action of etiological factors, to a large extent the differences of definition at the present time have tended more to become a difference in the mode of stating the observed phenomena than in an essential basic difference in these phenomena.

Janet's Views.—As Janet writes: "I do not exaggerate in telling you that nowadays three-fourths of the definitions of hysteria are nearly identical. Then I shall perhaps surprise you by telling you that there is no opposition between the definitions that gloriously entitle themselves physiological and those that modestly call themselves psychological. No doubt there would be a great difference if these authors had seen, really seen, a lesion characteristic of the neurosis, and if they had connected the evolution of the disease with this lesion. Instead of saying, 'The function of language is separated from the personality,' one will proudly say, 'The centre of speech has no longer any communication with the higher centres of association.'"

Janet himself has attempted a brief definition of hysteria in which he states that "hysteria is a form of mental depression characterized by the retraction of the field of personal consciousness and a tendency to the dissociation and emancipation of the systems of ideas and functions that constitute personality." This may be taken as a type of the psychological definitions which are based upon the phenomena of dissociation in the personality. It is an elaboration of the earlier

views of Charcot, who emphasized rather the phenomena of abnormal suggestibility, and with some modification is allied to those of Möbius, Strümpell, Bernheim, Oppenheim, Prince, and even Babinski, who recently has suggested a narrowing of our conception of hysteria to the phenomena of suggestion, and wished to use as a name "pithiatism" for this group, and reject other phenomena, as when he says he calls a phenomenon hysterical when it can be produced through suggestion and cured through persuasion. In all of these views of hysteria suggestion is used without definition, thus clouding our conception of the writer's views upon the mechanism of the evolution of the phenomena, but in most cases it seems that by suggestion is meant a too powerful idea acting on the body in an abnormal manner. This, however, is really begging the fundamental question as to why and how this idea acquires such power to act. As Mathieu and Roux say in speaking of hysterical vomiting, "What characterizes hysterics is less the fact of accepting some idea or other than the action exercised by this idea on their stomachs or intestines."

Freud's Views.—Freud in his theories accepts a mental process of dissociation, and in his work has elaborated chiefly the etiological side. It is difficult to give briefly any idea of these views, but in their essential points they consist of the idea that the symptoms originate from ideational complexes with marked feeling tone, by such processes as (*a*) conversion, where the emotional affect produces abnormal physical innervation, or (*b*) by transposition of the affect through indifferent ideas. Gradually, Freud in his study of the neuroses came to lay more and more weight upon the affect being dependent upon sexual aspects, using sexual in its largest sense. As Freud's views are fully elaborated in the chapter on the Psychoneuroses we shall not enter further into their consideration here.

White's Views.—White has expressed the whole matter very clearly when he says: "The characteristic of the psychic trauma which produces hysteria is its large content of painful affect. A painful affect, fully reacted to at the time, may produce no harm, but if for any reason reaction fails, and the feelings are contained and repressed, the possibilities of dissociation are created. Failure of reaction may be due to the failure of conditions that make efficient reaction possible, as for instance an insult 'is swallowed;' or a dear friend or parent who cannot be replaced, and for whose loss there seems to be no compensation, is lost by death. This gives rise to 'retention hysteria.' Again, ideas usually of a sexual nature, which are incompatible with the personal consciousness, are repressed—reaction is not permitted, no effectual catharsis takes place. This condition produces 'defence hysteria.' Finally, experiences occur in a hypnoid state. This is a condition midway between waking and hypnosis, a dreamy state of mind . . . they produce the so-called 'hypnoid-hysteria.' The strangulated affect, the unreacted-to emotion, belonging to the dissociated state which has been repressed, finds its way into bodily innervation, thus producing the motor phenomena of hysteria."

Physiological Theories.—Of the more physiological theories is that of Sollier, who defines hysteria as a functional psychical disturbance of the brain, consisting in a torpor or sleep of the cerebral centres, with ingenious explanations of the various phenomena of hysteria by this means. As Jelliffe says in his excellent article on "Hysteria" in Osler's *Modern Medicine*, this is a dissociation theory pure and simple, and inasmuch as little is known of sleep physiologically, one makes no advance by defining hysteria in terms of sleep. Binswanger, in his monograph on *Hysteria*, inclined somewhat to a physiological interpretation, though he was among the first to clearly emphasize the importance of what he terms the psychical trauma, the emotions, the affect in the development of hysteria.

Binswanger, however, does not believe it to be true that all hysteria is produced exclusively by psychical processes, though he admits that all hysterical phenomena can be influenced by such processes. He thinks that in hysteria there is a disturbance in the relations between these physical and psychical processes, so that for some physical stimuli the psychical processes are weakened or absent, while, on the other hand, psychical processes may result in a response by a physical reaction, especially to ideas.

Savill's theory is based upon an elaborate vasomotor hypothesis. He thinks that hysterical fainting is one of the most important hysterical symptoms, and explains the hysterical convulsions as due to the action of a special reflex vasomotor centre in the solar plexus of the sympathetic, which explains the starting of attacks by pressure upon the sensitive areas so often found in the iliac region of the abdomen, the *ovarie* of the French writers. This centre can also be stimulated in other ways, among them through the emotions. By these assumed changes he ingeniously explains many of the hysterical symptoms. He ascribes a great influence to the emotions in producing these vasomotor disturbances, and presupposes both an abnormal vasomotor condition and an abnormal emotional instability, as well as other mental peculiarities, such as a tendency to abstraction, autohypnotism and dissociation, as predisposing causes for the development of hysteria.

Jelliffe apparently regards hysteria more as a biological reaction, the carrying over into adult life of a primitive adaptive type of nervous and mental reaction to psychical influences due to congenital anomaly, acquired developmental changes, or diminished resistance.

Relation of Emotions to Traumatic Neuroses.—HYSTERIA.—The one point which most closely concerns us in these various conceptions of the nature of hysterical processes is the large part played in their causation by emotions of various sorts. Freud would limit these emotions to those aroused by sexual traumata, which he places as to time generally in infancy, but ascribes the production of the hysteria to the mode of reaction, chiefly by suppression, to this emotion of shame, disgust, or what not. Others see in this an undue narrowing of the kinds of emotion which produce the hysterical mental states.

In the discussion at the joint meetings of the Paris Neurological

Society and the Psychiatrical Society of Paris, December 9, 1909, and January 13, 1910, on the role of emotion in the production of neuropathic and psychopathic phenomena, many interesting views were advanced and some cases cited which seem very instructive in elucidating the mode of origin of such phenomena from injuries. All the physicians agreed that emotional shock and repeated mild emotions might cause various neuroses. A good many thought that for this result a certain trouble of the emotional stability which might be latent was necessary, but most agreed that some cases occurred in which this precedent emotionalism could not be discovered before the onset of the neurosis. It was agreed also that emotions are able to provoke hysterical manifestations in a subject where the emotional stability is disturbed, in the absence of any suggestion either antecedent, or through imitation, and this is especially true of hysterical convulsions. Sollier stated that in his opinion most hysterical phenomena are only phenomena produced by the emotions which are dissociated and fixed and that hysteria is more an abnormal mode of reaction of the nervous system than a disease. Vogt, in discussing the importance of suggestion in this connection, admitted, as did practically all those present, the influence of suggestion, of autosuggestion, and even of medical suggestion, usually unintentional, in producing hysterical phenomena, but believed that an emotional cause was always present, and the most important element, and that where suggestion was efficient, there was always an emotional element associated with the suggestion. As Vogt put it, the realization of the suggestion is due to the augmentation of the suggestibility by the emotional dissociation, and that hysterics with exaggerated dissociation show this, not for suggestion pure and simple, but for suggestions associated with an emotional element. He further stated that in his investigations he had always found emotion at the base of convulsions, usually a recent emotion, and associated with it a certain number of old emotions, that is, the subconscious fixed ideas of Janet or the complexes of Freud, but disagreed with the latter in that he did not believe them always sexual. The general conclusion on this point was that convulsive attacks may be caused by an emotion, but are capable of being modified by suggestion or imitation.

Crocq, of Brussels, instanced in this connection a case he had seen where a young woman saw an engine coming toward the railway carriage in which she was seated, but the engine was stopped close to her train without there having been a collision or even any blow, who developed a flaccid paraplegia with anesthesia to the umbilicus, which lasted two years. In this case there were no antecedent personal or hereditary neuropathic tendencies. In the further discussion on emotions producing paralyses and contractures, a number of men instanced cases, as Sollier, while Dejerine spoke of a case of astasia-abasia which came on in a girl after seeing her pet dog killed by an engine, and stated that he was unable to see in such a case, where the person affected was ignorant of medical symptoms, how suggestion could play

a part in producing such a paralysis of a particular form of movement, leaving other movements unaffected, and he concluded that in these cases, again, we have to do with the effects of emotion without suggestion.

Janet then stated that it is rare to be able to produce by suggestion any phenomena which persist for more than a few hours at most, and instanced that repeated examinations for anesthesia, by students, of patients in his wards, does not produce anesthesia, and in case it did, it would prove that the patient was hysterical, and said further that if he found anesthesia produced by an examination, he should consider it an interesting fact and one that would show a disposition toward such phenomena which would separate such a person from normal ones, and that if this anesthesia persisted, he should not hesitate to say that the idea caused by such a medical examination played but a feeble role, and that this medical examination, whether it had caused the emotion or whether it were coincident with other phenomena, had been nothing more than an occasion of producing troubles which were already about to become manifest.

Oppenheim has also called attention to this point, justly insisting that if the so-called hysterical stigmata, such as anesthesia, and contractions of the field of vision, are artificial products created by suggestion, even then they would retain their diagnostic value.

Again, Janet stated that he had seen cases where there was anesthesia, where the sensation had not been examined, and where this had been noticed by the parents, as in the case of a girl where the mother noticed that she showed no sign of pain when a cautery was used upon the knee, and then found the same was true for pinching the leg, and Janet found analgesia also in other areas where it had not been noticed.

The writer has seen a similar instance in a case in which hysterical paralysis developed immediately after an accident, and where sensation of the skin had not been tested at all, and while the physician was trying the plantar reflex, the patient asked why the stroke of the pointed stick hurt her in one foot and not in the other, and later a complete hemi-analgesia, with the exception of the face, was found to be present by the writer, when every care was used to avoid any suggestion to the patient during the examination.

Janet also made the statement that anesthesia is difficult to produce in hysterics by suggestion except in cases which have already shown anesthesia. Thus most of the men disagreed with Babinski in his idea that these various symptoms were always produced by suggestion; Sollier asked why anesthesia was not suggested upon both sides of the body, if this were the case, and asked how, if this were true, the disseminated areas of anesthesia or hyperesthesia were produced; and Pitres, and especially Dejerine, insisted that to produce symptoms through suggestion the idea of the symptom must necessarily be joined to some emotional affect, or as Pitres put it, these symptoms could not be produced by a cold idea, but were by an emotion, especially when this was sudden and unforeseen. Janet also called attention to the

fact that we also see hyperesthesia, as well as anesthesia, which is difficult to explain if anesthesia were always the artificial product of a maladroit medical examination. And again later Janet expressed surprise at Babinski's method of inquiry, and insisted upon the necessity of psychological study of hysterical cases, stating that the explanation of the production of the various phenomena is not as simple as by autosuggestion, and insisted that in such a case as where a girl became hysterical after the death of her fiancé, where there developed fixed ideas in regard to the fiancé and his death, there were no fixed ideas of the somnambulism and amnesias which developed. Dejerine, too, maintained that what seemed necessary for the development of hysterical symptoms from an emotion was that it should be a sudden emotion, an emotional shock, coming upon a person who was unprepared and in a quiet condition.

The conclusion from this discussion was, as we have seen, that emotions play an important role in the production of hysteria, and certainly of hysterical symptoms, while it was conceded that a certain predisposition is probably present in most cases, though in many of them not easy to demonstrate, and most agreed that this predisposition consisted in a certain impairment of the emotional stability which might be hereditary or acquired, as through the effect of previous repeated emotions of various kinds, such as worry, anxiety, or others, or perhaps by the depression of various debilitating diseases or intoxications, such as that produced by chronic alcoholism, or possibly other factors which tend to depress the resistance of the organism in general.

NEURASTHENIC STATES.—In regard to the production of neurasthenic states by emotion the general conclusion was that emotions, even repeated ones, do not cause them alone, but that an exaggerated emotivity was necessary, or a debilitated condition of the organism, or either physical or psychical degeneration which might be acquired or hereditary. Claude, in speaking of neurasthenia, stated that while to some it is a pure psychic malady curable by psychotherapy, others think it the expression of defective organic conditions, chiefly affecting the energy. This latter may be the case, and there may be a depression of the nervous energy, with secondary obsessions, scruples, doubts, and melancholic ideas. That is, it is a syndrome of enfeeblement of the nervous system with its cortege of troubles, such as amyasthenia, various pains, indigestion, cerebral fatigue, inability to work, and so on. Sollier called attention to the difference between neurasthenia and hysteria, in that in the first we had chiefly enfeeblement and obsessive preoccupation with the functional troubles, while in the latter it was more a loss of representation of the normal functions. Crocq instanced a case he had seen in a man who tried to rescue a person who was pinned down in the burning wreck on a railroad, where these attempts had failed and the man developed a grave neurasthenia, and he thought that pure emotions might cause the neurasthenic conditions as well as the hysterical ones.

In the discussion upon the question of the relation of emotions to traumatic neuroses, Dejerine was inclined to think the emotional shock the sole cause, but argued for a predisposition in the persons developing these neuroses, but added that they developed in the subconscious and so are not easy to trace. Babinski conceded that in these cases various evidences of emotion, which are usually transitory, may persist for a number of months, and enumerated among these the rapid heart, persistent vasomotor troubles, dermography, waves of heat in the head, coldness of the extremities, excessive sweating, tremors as well as headaches, vague and diffuse pains, insomnia, and anxiety. Because of the frequency of these symptoms he prefers the name "emotional neurosis."

In another discussion, on April 9, 1908, in regard to suggestion and especially its influence in hysteria, it was generally agreed that in this disease there is a hypersuggestibility, and symptoms exist in it which can be produced and cured by suggestion, but that suggestion had no action upon the tendon, skin, or pupillary reflexes, or upon circulatory and trophic disturbances, such as dermatographia, edema, eruptions, hemorrhages, ulcerations, gangrene, nor upon the secretory functions such as the urine or saliva, with the possible exception of the sweat, nor upon the temperature. The general conclusion also was that other neuroses than hysteria could be influenced for better or worse by suggestion, such as the morbid fears, the obsessions, the *maladies de doute*, psychasthenia, and neurasthenia, but that in these its action, when it had any, was generally slow, while in hysteria it might also be sudden.

We have considered thus fully these discussions upon the relation of emotions, especially sudden emotions, to the neuroses because of their bearing upon the development of a neurosis after an accident. In many accidents, especially those upon railways where there has been a collision or wreck of a train, the circumstances of the accident are adequate to produce the most vivid and varied emotions, particularly fear. The suddenness and unexpectedness of the accident, the sudden jar and shaking, the crash of the collision and the noise of breaking glass and wood, the cries of the injured, the rush of escaping steam, perhaps the flames of fire in the wreck, are all calculated to increase the terror felt, even when no physical injuries have been received; while in addition, there may be the pain of cuts or crushed limbs, or the prolonged terror of being pinned down by wreckage unable to escape, perhaps with the imminent possibility of being burned present. Other accidents where the danger is less or trifling, or even absent, may cause almost as great terror, simply from the inability of the person, because of his situation, to judge of the danger, as where it is dark or for other reasons. For example, a woman was seated in an open electric car in the evening, returning from some of the exercises of Decoration Day, when another car ran into the rear of that in which she was riding with so little force that the electric light bulbs in the headlight of this car were not broken, but there was a loud crash as

the bass drum of the band which was returning upon this first car, and which had been hung over the rear dasher, was crushed between the cars. The jar was very slight, and the woman apparently received bruises only from slipping from her seat in hysterical syncope which came on at once, and was followed by other marked signs of hysteria.

The hypochondriacal fears of various sorts which arise during the time of incapacity from physical injuries and which aid in producing these neuroses have already been mentioned. It seems most probable, however, that by far the greater number of cases of hysteria are produced by this emotional shock, to which in most accidents the person cannot react, because of his helplessness from the circumstances of the situation itself, in order to protect himself in any way, the mechanism being similar to that in Freud's class of hysterias from the death of a dear relative. Yet another element in the situation not infrequently arises, as where the accident happens to a person in a more or less profound state of abstraction, such as is natural in a person who is a passenger in some vehicle which is moving smoothly along, the attention being partly taken up by the panorama of passing objects, and partly directed to a more or less musing revery upon the object of the trip, the business about to be attended to, the events which preceded starting on the journey, or other things. A rather striking example of this combination of circumstances was seen by the writer some years ago where a man was riding in a railway train rather late at night, sitting, thinking of various things in a drowsy state, when the window of the car at his side was broken and he was showered with broken glass, the window having been struck by the loosened door of a freight car the train was passing, which swung out just then and happened to strike this window, but did very little further damage. This man developed distinct hysterical symptoms.

Cases arising under these circumstances seem to resemble Freud's class of "hypnoid hysterias," the resemblance between the condition of revery, the hypnagogic or half-waking state, and the slighter grades of hypnosis being very close. It may be that some such state of abstraction is necessary always in order to enable any sudden emotion to produce the more lasting states of dissociation which are characteristic of the mental state of hysterics, the abstracted states being a condition of temporary partial dissociation, which is rendered more fixed by the psychic trauma, especially when the surrounding circumstances prevent any action which might serve as the natural reaction to this psychic trauma.

The development of hysteria produced by an accident may be sudden, the symptoms appearing at once, or it may be days, weeks, or even months before the picture of the disease is at all complete. In such latter case we may consider that the psychical dissociation occurring at the time of the accident, required time for the development of the conversion, to use the Freudian term, into the physical symptoms of paralysis, contracture, anesthesia, or what not, only the mental stigmata of hysteria developing promptly. It is chiefly in such cases as these

that suggestion of some sort or other seems to have determined the character of the physical phenomena which appear. This view is supported by certain cases of hysteria in children, especially those following slight traumata or pure fright, as in children such traumata seem even more frequently to stand in causal relation to the development of hysteria than in adults, with their larger range of associations in social life, and their more frequent exposure to obscure and repeated psychical traumata because of these wider and more varied social relations. This interval between the accident and the appearance of physical symptoms attracted the attention of Charcot with his marvellous clinical insight, and was termed by him the period of meditation, or neurasthenic preparation. He also called attention to the frequency of a dazed mental state in the cases where hysteria developed.

Variations in Symptoms.—The symptoms shown by the hysterical cases following accident vary a good deal, as do all cases of hysteria, and are apt to be accompanied by a good many of the symptoms which we have spoken of as neurasthenic, which is not to be wondered at, inasmuch as the same circumstances which produce the neurasthenic states are generally present, as the pains from organic injuries, the depressed mental condition, with worry about the future health, ability to work, insanity, and the other depressing mental factors already spoken of at sufficient length. Indeed, in certain cases it is difficult to class the individual case, which has been the cause of some writers, notably Oppenheim, suggesting the term of traumatic neurosis for these states, considering the differences more or less unimportant, which is hardly the case if we consider a psychical dissociation as the essential thing in hysteria, and exclude from it cases where this is not present.

Yet it cannot be denied that many cases which we are compelled to class among the neurasthenic ones, because of the character of most of the symptoms, show certain mental states, much more frequently found in hysteria, as fixed ideas in particular, most often in regard to pain in a part of the body which has been bruised or injured, but in regard to other symptoms also. Such an example is quoted by one writer, and analogous cases are frequent enough, so that every neurologist can instantly call a number to mind from his own experience, where a woman complained of such weakness in the arms that she was unable to lift her hand to give it to the physician and yet spent over an hour every day with her hands to her head arranging her hair, and when asked how she could do this, answered that she was compelled to do her hair herself, as her head was so sensitive she could not let anyone else touch her hair without suffering the acutest agonies.

The symptoms in the hysterical cases, aside from the neurasthenic ones, of which we have already spoken, are chiefly the hysterical syncope at the time of the accident, or loss of emotional control then or soon after, and occasionally an hysterical hallucinatory delirious state, which more often appears the night following the accident, and may last some days. Then, too, certain hysterical symptoms which may

appear at once, or later, are such symptoms as tremors, flaccid paralyses, spastic paralyses or contractures, hysterical pains, which are frequently produced by a light touch, or joint pains, which may accompany paralyses or contractures; paresthesiæ, hyperesthesiæ, and hyperalgesia, frequently local in character, and usually at the point where organic injuries more or less severe have been received, anesthesia and analgesia in any of their well-known hysterical forms, but more often diminution of the perception of touch or pain; the anesthesiæ of special senses, smell, taste, hearing, and especially of vision, sometimes as a hysterical blindness of one eye, but more often a concentric contraction of the field of vision, usually in both eyes, but sometimes only in one, or more marked in one, and this usually on the anesthetic side, if anesthesia be present. It is to be noticed that the paralysis, contracture, and anesthesia are almost invariably on the side where the injury was received, and usually if the head has been injured, the same is true. Inversion of the color fields is also seen, but is somewhat rarer than simple contraction of the field of vision. Other affections of the gait are seen at times besides the paralysis of one or both legs, such as astasia-abasia, staggering, and rarely the short steps, and insecurity, spoken of by Bruns and Oppenheim as a stammering gait. Edema is rare, and is usually secondary to local injuries, such as fractures, or to an hysterical contracture or paralysis. True bladder and rectal troubles do not seem to occur, and even the hysterical retention of urine is rare, and that occasionally seen immediately following the accident is usually apparent only, and due to pain in the back or abdomen inhibiting the effort to expel the urine. Occasionally mutism or hysterical aphonia is seen as a transitory symptom, or one of the rarer hysterical symptoms, such as trophic changes, the hair changing to gray, at times only in an area where severe pain was felt, or monocular diplopia, or spasm of the muscle of accommodation may be seen. Convulsions are rare on the whole in cases of traumatic hysteria.

In the diagnosis of these hysterical troubles from those due to organic causes the usual signs are to be considered, as in non-traumatic hysteria. The skin reflexes may be diminished or even lost on one side where there is anesthesia, though they are perhaps as often unaffected. The tendon reflexes may be much increased, but most writers state that a persistent clonus is never present, and the writer has never seen this in any case of hysteria, nor does Babinski's extensor reflex of the great toe or Oppenheim's reflex occur. Other signs also have been discovered, some of them in recent years, which enable us to differentiate hysteria from obscure organic troubles, such as distinct nystagmus, optic atrophy, Hoover's leg sign, etc. Impotence is claimed fairly often, but in the purely functional neuroses probably does not occur, though the possibility of a small hemorrhage into the substance of the spinal cord must not be overlooked, and other symptoms of an organic injury should then be looked for, though not invariably present. In one case of this sort seen by the writer there was anesthesia of the buttocks and posterior surface of the thighs in the well-known "riding

breeches" form, and atrophy of some of the small muscles of one foot, with the reaction of degeneration. In the neuroses there is usually only a lessening of sexual desire, such as is seen in cases due to other causes than accident, but this symptom is quite frequent. Nutrition in these neuroses may be either good or poor, depending chiefly upon the appetite.

Disturbances of Circulatory System.—Symptoms from disturbance of the circulatory system are fairly frequent, such as a persistently quick pulse, or one running up to an abnormally high rate after slight exertion. Bruns and Oppenheim think this persistent rapid pulse may lead to hypertrophy of the left ventricle, and even to a relative incompetence of the valves, and explain the rapid heart as chiefly secondary to psychical causes. Occasionally, a persistently very slow pulse is seen, most often after severe injuries of the head. Other circulatory disturbances already spoken of are the localized edemas and the dermography, which, however, may be produced by such a variety of other causes that its importance in these cases is lessened. It can hardly be considered as indicating a marked disturbance of the vasomotor control of the bloodvessels unless in the very marked forms, or unless the cutaneous reaction lasts for some fifteen minutes.

The symptom described by Mannkopf and Rumpf, a rise of the pulse rate as a reaction to pain, such as that produced by pressure upon tender areas, is sometimes present, and the increase may be as great as thirty beats to the minute. If marked increase is observed this sign is of value, but all writers agree that on the whole it is of little value, as it is too inconstant. Its absence proves nothing, one way or the other, and a slight rise may be seen where there is no pain.

Visual Symptoms.—A sign which is considerably more reliable is the dilatation of the pupil when pain is produced, but here again the absence of the reaction proves nothing in regard to pain being absent, its presence being due in part to the severity of the pain produced, and in part varying with the individual, though it is seldom absent when severe pain is produced in the neighborhood of the eye.

Simulation.—These tests have been used to a considerable extent as tests which would exclude simulation. We have already spoken briefly of simulation, a subject which has aroused much discussion, and of late especially in regard to such symptoms as anesthesia and the field of vision, which Oppenheim, Nonne, Wilbrandt, Sänger, and Bruns in Germany, Sollier, Dejerine, and Janet in France, and most of the neurologists in England and America consider to be relatively objective symptoms, while Strümpell in particular in Germany and Brissaud and Babinski in France consider them as often suggested. The significance of the possibility of such suggestibility being present, as proving the existence of a neurosis such as hysteria, in which abnormal suggestibility is a frequent and almost constant psychical phenomenon has already been spoken of, most of the objectors to the value of anesthesia and the contracted field of vision having ignored the fact that if all the symptoms of a neurosis are suggested, it would show an

abnormal state. To exclude simulation in regard to the field of vision it has been suggested that the field, instead of being tested in the ordinary way with a perimeter, should be projected upon the wall of the room or at several different distances, and the correspondences of the fields obtained in these different ways be used as confirmation of a contraction being present, but this test would fail in the case of the tubular field of vision, at times seen in hysteria, especially where the degree of contraction is very great, the writers forgetting that hysteria is a mental disease. Such tests, which would prove simulation in cases of organic contraction of the field of vision, would prove nothing but that the difficulty was psychical or simulated.

Our most *reliable criteria*, then, in the case of all hysterical phenomena, consist in assuring ourselves, by repeated examinations, not only of relatively objective symptoms, but by a study of the mental phenomena present, whether the phenomena observed are consistent with our knowledge of the phenomena seen in hysteria, not forgetting, as has been said, that strictly objective symptoms are always lacking in psychical diseases. Another instance of the futility of placing too much weight upon such tests for objective symptoms is seen in those used by oculists for detecting simulation of unilateral blindness, forgetting that with hysterical blindness of one eye that eye is used in binocular vision—a fact that can be easily confirmed by anyone in such a case, and seen in similar cases where there is no suspicion of simulation. By suitable tests it is easy to prove that the nerves which convey cutaneous sensation in hysterics, are not organically defective. The fact that a person touched upon the anesthetic side a varying number of times when told to speak a number, may give the number corresponding to the number of times the anesthetic area has been touched, is a demonstration that the sensation of touch is conveyed to the brain, but not of the fact that the sensation has come to the consciousness; and, of course, the phenomenon of the transference of a hemi-anesthesia to the opposite side of the body by suggestion is another method of demonstrating that the nervous apparatus is organically intact.

It is a curious fact that physicians think that simulation of disease and of symptoms in the traumatic neuroses is more frequent, apparently in direct proportion to their ignorance of psychiatry and of the phenomena of nervous disease. Certainly, men of large experience with nervous diseases and the psychical phenomena of such diseases in all countries agree that the simulation of the functional neuroses after an injury is rare, the highest estimation, with a few exceptions, being about 10 per cent. of cases, while Oppenheim places the number at 4 per cent., and Bruns at not over 8 per cent. The successful imitation of all the varied symptoms of a functional neurosis would probably be impossible, and certainly so if opportunity were given for observation of the case, and is nearly as easy of detection by a skilled neurologist as imitation of an organic nervous disease.

The question of the *simulation of a single symptom* is somewhat

different, especially in cases of hysteria, as such simulation and artificial production of symptoms is frequent in non-traumatic hysteria, and has led to much multiplying of symptoms in this disease, and finally to the rejection by most neurologists, notably by Babinski, of many such symptoms, such as most of the cases of hysterical fever, the blue edemas, the ecchymoses and bullæ, and other changes in the skin, and probably many other symptoms formerly considered hysterical, though many authorities still believe that physiological processes may be modified in this disease. Almost all writers admit the influence of psychic causes in producing temporary polyuria, and possibly anuria, hysterical fever, and sweat of various colors. Who does not know of cases of hysterical vomiting, where at times the attack of vomiting is induced by the patient, and yet is certain that most of the vomiting is beyond the control of the patient? So we may agree with Strümpell when he says that a simulator may be hysterical, and a hysteric simulate, and yet contend that when he says in the same connection that a simulator and a hysteric are much the same except for the difference in the content of the consciousness, and that therefore a simulator is responsible, and a hysteric not, he is stating the facts in a misleading way, as not emphasizing more the difference in the content of consciousness, in that this difference is the essential thing in the psychic state of a hysteric, and beyond the control of the will as completely and entirely as the hallucinations or delusions of various psychoses are beyond the control of that patient's will. So even when it is found that a single symptom is simulated, one must not in consequence suspect the whole disease to be simulated, which is rare and probably impossible, but proceed to discover whether the remainder of the disease picture corresponds with what we know of the mode of action of any known psychoneurosis.

Exaggerations of Symptoms.—On the other hand, not only from our knowledge of the neuroses after accident but from the mode of action of the mind in these neuroses in all cases, we must recognize that exaggeration of symptoms is extremely common, partly from the characteristic of human nature to place emphasis upon a thing which immediately concerns us, but also upon the presence in these neuroses of introspection, which tends to fix the symptoms more firmly and continually in the field of attention, and so increase them, both by contrast to other matters in the mind and by hypochondriacal worry over the discomfort and the final outcome. This exaggeration, then, too, is to a large extent unconscious, and is usually greater in uneducated persons who have little idea of the significance of various symptoms, or erroneous ones; but this tendency to exaggeration is undoubtedly increased where a pecuniary value is to be placed upon the suffering and incapacity, with the exception of cases in children, though in the case of adults we not infrequently see the wife much more affected by this motive in producing exaggeration of the accounts of sufferings than the patient himself. The view that exaggeration is largely unconscious is favored very decidedly by the fact that cases in which rapid improve-

ment is seen after the settlement of the claim for damages are exceptional and far from the rule, as is sometimes claimed. Such rapid improvement should make one suspect simulation of the whole disease, though it is, of course, not impossible in hysteria, where the cure may be sudden under certain conditions, as witness the cures at various shrines, and by other psychical methods, though, on the other hand, Erichsen called attention in traumatic cases to the obstinacy of the symptoms, especially of the hysterical symptoms.

In conclusion we may admit the correctness of the contention of writers, such as Brissaud, who proposes a new name for these neuroses, sinistrosis, and of Strümpell, who sees in what he terms the "begehrungs Vorstellung," that the nature of the mental state in these neuroses, with the introspection, worry, and suggestibility, favors the prolongation of the disease, and yet we may maintain that these elements are of no importance in the production of hysteria, and of only secondary importance in that of neurasthenic and hypochondriacal states, and that in addition to this these deleterious influences are almost wholly unconscious, and due to the nature of these neuroses, and only in small part does the hope of pecuniary gain enter in to influence the production and prolongation of the neurosis. The most frequent mode of origin of the mental attitude which results in these cases, so that in the end, efforts for the cure of the trouble are made upon an unwilling person, have already been spoken of above, and are, in our opinion, much more due to other things than the hope of recompense. Chiefly from the formation, in the way that has been sketched, of fixed ideas of incapacity for work, and the seriousness of the condition, which are rather increased than allayed by statements only too frequently made by physicians that there is nothing the matter only a nervous condition, which without explanation are hardly likely to make a person with a severe headache feel reassured as to there being no serious trouble causing the severe pain which he feels.

Fraudulent claims for damages arising from accidents are no doubt frequent, but the experience of physicians in this country and others is very general, that much more common than simulation of any disease is the ascribing to the accident some disease which has existed before. This is perhaps more often the case with epilepsy than with any other disease, but is on the whole much more common with the various forms of organic disease, heart and kidney diseases, and all the chronic progressive nervous diseases, such as tabes, paretic dementia, and syphilitic diseases of the nervous system, and others, than with the functional nervous diseases. It should not be forgotten, however, in justice to the patient, that even such claims as these are not infrequently made in good faith. A person whose valvular heart disease has existed for years, unknown to him, naturally ascribes to an accident the symptoms produced by the incompetence of the heart action, which is frequently brought on by the physical depression produced by the accident. In the same way the other chronic progressive diseases may first show symptoms that attract the sufferer's attention after

an accident. In these cases the progress of the diseases may have been hastened by the illness resulting from the accident, or the physical shock have determined the time of onset, as is not infrequently the case with tumors of various kinds, or the circumstances have determined the development of a particular symptom, as the rest in bed and lack of use of the legs the appearance of the ataxia in a tabetic, whose other symptoms, such as pains, may have preceded the accident by several years, and attracted no particular attention. In epilepsy, not at all infrequently the fall by which the injury was received may have been due to an attack of the disease, a fact which, of course, may be difficult of proof.

Treatment.—We have discussed thus fully some of the theoretical considerations in regard to the nature and etiology of the traumatic neuroses, because without some comprehension of these matters an intelligent therapy, and in particular the application of the therapy, is impossible, and the reason for this is that any successful treatment of a psychosis neurosis must necessarily include the modification of psychical reactions, that is, must be a psychotherapy.

Prophylaxis.—First, however, we may devote a few words to the consideration of prophylaxis. In part this depends upon a proper training of the individual, and especially during childhood, so that by direction, example, and education there may be inculcated a normal self-control, and a clear view of one's duties and responsibilities in the various social relations. Especially is this true in the effects of training and education to eradicate an abnormal emotional instability. In a similar way, by training and education, the lessening of ignorance and superstition, particularly in regard to disease and nervous diseases in particular, helps to make the soil upon which a psychoneurosis grows, more unfavorable for its development. So all problems of the education of the young have their bearing, though perhaps somewhat indirectly upon this special question. To a certain extent this is seen in the fact which has been noted by many observers in various parts of the world, and to which attention was directed, especially by Prince, a number of years ago, that the various forms of neuroses following accidents are exceedingly rare as the result of injuries sustained in the various forms of sports, such as foot-ball; and this has been explained probably correctly by the fact that the effect of the emotions producing these neuroses is in part due to their unexpected character, as they do not arise in circumstances where the individual is to a certain extent prepared for the occurrence of some injury, and has some idea of the probable nature of injuries which may arise. These educational problems have been given an entire chapter in this work wherein many additional features may be found.

Protection of Workingmen.—Another important field of endeavor by which we may lessen the frequency of the traumatic neuroses, and one in which this country has still much to learn, is the effort to reduce the number of accidents, particularly in the protection of workingmen. Various devices to increase safety have been invented,

and the use of certain of these, especially upon railroads, has been enforced by law, with a considerable lessening of the number of accidents, particularly to employees, but in many other fields of work such measures as might be employed are as yet seldom taken. One writer instances a case where in a manufactory devoted to the making of various safety appliances none of these were employed to prevent danger to their own workmen. In procuring the passage of laws requiring the use of approved safety devices in various industries and adequate factory inspection we see a field which might well employ the activities of social reformers and labor unions for many years to come. Methods of various kinds, too, which tend to diminish the risks consequent upon increase of travelling, and to diminish the risks of the almost universal demand for greater speed in travelling both upon railroads and upon highways, are subjects for consideration by legislators, reformers, and others. The placing of trains and large electric cars upon elevated structures or underground is a step in the right direction, as well as limiting electric railway lines between towns to their own right of way, instead of granting locations for them upon the public highways, and such steps are becoming more and more common, the transportation companies being forced to adopt such measures, partly by public opinion, and partly by the constantly increasing sums they are compelled to pay as damages for injuries received in accidents.

Relation to Accident.—A neurosis, however, is by no means the outcome of every accident, but the development of such states depends upon various circumstances. A predisposition to excessive emotional reactions is present, no doubt, in many or most cases where a neurosis develops, but evidence upon the point as to whether this is essential in every case is difficult, and perhaps impossible to obtain. However, the comparative frequency with which cases of traumatic neuroses are seen, in which even with an intimate knowledge of the antecedents and of the heredity of the patient no such predisposition can be found, as has been reported by many eminent and capable neurologists, some of the cases having been referred to in the preceding pages, show that a predisposition is not absolutely necessary; certainly, in the cases where hysteria develops. With hysteria, undoubtedly the nature of the emotion, and the reactions produced by it, and the mental state at the time in which it was produced, seem to have much more influence than the existence of a supposititious predisposition to the development of the disease. Then, too, as we have seen, the circumstances following the accident have much to do with determining the development of a neurosis, especially worry over the condition and the final outcome. Here is another place in which much might be done to prevent the development of these neuroses, or to cut them short.

After the recovery from the surgical injuries of various sorts, which were the direct results of the accident, a careful examination by a competent physician, whose knowledge of the nervous troubles which may follow is good, with the careful reassurances of the patient by him,

can do much to counteract the worry which is a natural consequence of an injury, more especially among the ignorant. Usually, however, this is not the course of events. The patient is generally seen only by a surgeon or the family physician whose knowledge of surgery is not great, and of nervous diseases still smaller. When the cuts and bruises or fractures are healed, the patient is told he is cured and advised to return to work, and no one has paid any attention to the nervous condition. The injured person, however, does not feel cured, is still weak, and consequently timid of the consequences, and the effect of the attempt to return to work or even to ordinary life is an increase of the remaining symptoms, and frequently the confirmation of the fear the patient has, perhaps unacknowledged to himself, that he will never be able to work again, and the setting in motion of the train of consequences by this fear, which we have already sketched.

It is important in cases of injuries that there should be a time of convalescence before the attempt to return to work is permitted, and this should be passed away from the talk of friends and the recital of instances of other injuries supposedly similar to that the patient has suffered, from which there has been no recovery or improvement. The statement of the need of such a period of convalescence indicates a great gap in our system of medical charities, for which there is a need which can hardly be expressed too strongly, for not only are such periods of convalescence needed by injured persons in order to prevent or check the formation of the accident neuroses, but there are even greater numbers of patients who have undergone some surgical operation or passed through an attack of some acute disease, who would be saved from becoming a burden upon their friends or the community, and often a permanent burden, if rest or convalescent sanatoria of the proper kind were available. Here, again, is a field which might well be cultivated by philanthropists, or workingmen's associations, or insurance companies, which would result in as great benefit to the community as the founding of sanatoria for the care of the tuberculous. In such sanatoria there could be cultivated a mental atmosphere of encouragement and cheerfulness which would inhibit the growth of psychoneuroses such as are nourished by worry and apprehension.

Claude, in the discussion at the Paris Neurological Society, explained the rarity of hysterical convulsions at the present time as due to our better knowledge of how to treat our hysterical cases, all that he says applying with perhaps even greater force to the prevention of the development of this disease, and those similarly arising from emotional causes. Such functional disturbances should not be cultivated, but our efforts should be concentrated upon making the symptoms disappear by such methods as diverting the attention of the patient from them, and instructing the attendants and relatives in regard to the slight importance of troublesome symptoms, thus reducing them to their real value and importance as passing functional disturbances, the expression in most cases of a peculiar dynamic state of the nervous system provoked by a psychical process. What we usually see is in

startling contrast to this, perhaps, ideal picture. The sufferer from need, or because of directions from the physician, attempts to work, perhaps returning to work in the same place, and under the same conditions under which the injury was received; the surroundings recall the accident, the weakness makes the work difficult, and the symptoms return or become worse, and the fear of permanent incapacity is tremendously strengthened. Here is a point at which even under present conditions the physician may do much by encouraging the patient and sending him back to work, perhaps again and again; and no doubt many permanent cures are produced in this way, through the wise action of an intelligent physician, or in many cases by the doggedness and persistency of the patient himself, perhaps spurred on by the dire needs of his family. Too often, however, the natural circumstances which tend to favor the growth of these neuroses is increased by other circumstances which are or should be preventable. Among these are undoubtedly the desire for recompense for the suffering, perhaps increased by a natural resentment caused by the feeling that the injury might have been prevented, and so was unnecessary, and tinged with an element of malignancy, which is also aided by the very widespread feeling, especially in regard to public service corporations, that unfair legal methods to evade responsibility are constantly and systematically used, and these chiefly against the poor, who can ill afford the delay and expense of protracted legal proceedings. These feelings, usually shared by the relatives and friends, are reënforced again by the natural anxiety and apprehension of the family in regard to the severity of the symptoms and the possible outcome which tend to make them use their influences to keep the sufferer from anything which seems to increase the trouble, as work so frequently does, when first attempted or when tried under improper conditions.

Occupation Therapies.—Then we must consider, too, the fact that often, when attempts to work would have a beneficial effect upon the psychical state of the patient, by allaying his unnecessary fears and diverting his attention from his sensations, and himself, the patient is still too much weakened to be able to perform full work, and yet is prevented by fellow employees from doing the partial work of which he is capable, and which would act in a therapeutic way upon his remaining symptoms. The therapeutic value of work, and the mode in which this is produced, is indicated in what has just been said, but it is difficult to avail one's self of it. In the mild cases, work is probably the best treatment, but this, in the majority of instances, cannot be resumed as full employment at once, even after a time of convalescence has been allowed. With women whose occupation is that of housewife it can often be arranged as partial work with comparative ease, if the heavier work, such as the family washing and ironing, the heavier cleaning of the house, and such things can be done by other persons for a time. In resuming the other lighter forms of work it is important to direct the patient carefully about how to do this. First, that it must not be too confining, keeping her in the house the entire day

and depriving her of the benefit of fresh air. Then second, she must be warned that it must not be too continuous, particularly at first, that while she may benefit from active work about the house on her feet, for half an hour, an hour of such work may result in an amount of fatigue which may make further activity through the day impossible or harmful. For these reasons the work at first should be varied and done in short periods. If rooms have to be swept, let one only be attempted, and perhaps even the dusting and rearranging of the furniture left until later in the day, and some other part of the work of the household be taken up which can be done while sitting, as preparing the food which is to be cooked for the next meal, and the more active work taken up again after an interval.

It is important, too, that the activities of the day should be broken by rest periods, at first fairly long, and three or four or even more of them, during the day, when the patient should go to a room apart by herself, and after loosening or removing the clothing so that she can rest in comfort, lie quietly upon a bed or couch, not employing herself by reading or any activities, though at times having someone read aloud to her a suitable book, which interests and yet does not require close attention, may be more beneficial than to lie with nothing to divert the thoughts. As the improvement comes the rest periods may be lessened in number, and the periods during which one kind of work is carried on lengthened. In this way the patient can be trained to withstand fatigue and reëducated to a normal life. If the patient has had some occupation outside the home, it is often possible during the time when at home, before she is fit to resume this occupation, to accustom her again in much the same sort of way to this work. A dressmaker or seamstress, or factory sewing machine operator, can after a time, while still at home, be given a short period each day when she is required to do some work of this sort, and these periods gradually lengthened.

Much the same method can be employed in the case of a typewriter operator, a telegraph operator, a book-keeper, and various other occupations. The writer recalls one instance where, after an injury of the head, the patient was troubled by persistent dizziness, which finally lessened so that it came only when he looked up or down, and was noticed chiefly in going up and down stairs; but as the man's occupation was that of a paper-hanger, it caused a fall from the ladder the first time he attempted to return to work. In this case a cure was obtained by having the man accustom himself, gradually at home, to his work, by a regular graded and systematic drill in assuming the position required by that work, at first ascending one step of a ladder only, and raising the arms and looking up, and when this could be done several times in succession without great difficulty, the number of steps ascended was gradually increased, at first slowly, but toward the last comparatively rapidly, and before a great while the man was able to resume, at first partial, and later full work. The attempts to train the patient to his regular occupation, or any occupation, is often difficult,

as has been said, and for this difficulty some of the reasons have been given, and it always requires rather close supervision by the physician, as it is seldom persisted in for a long enough time, unless the patient is encouraged in continuing it, prevented from attempting to go ahead too fast, and reassured in regard to various symptoms which arise during the time, which they are apt to ascribe to this or that thing which they have done, so that considerable ingenuity has to be used in varying the conditions under which the work is done in order to allay the patient's apprehensions.

In sanataria work can be prescribed in carefully regulated amounts, and in the work rooms where basket-making, weaving, leather work, and a large variety of other handicrafts can be carried on under the direction and guidance of a teacher, we have a most useful method of diverting the attention and interesting the patient, and training him to withstand not only the fatigue of steady physical work, but also that of continuous mental attention, which in most of the functional nervous troubles is impaired much more than the physical strength. One difficulty in all such methods of work, which are more or less artificial, is that work, in order to have its best effect, in the neuroses and psychoneuroses, needs to be productive, or the patient soon loses interest, and then it becomes mechanical, and no longer benefits. This is also true of many kinds of work in which women are employed, as sewing, embroidery, and various other things, because they are largely mechanical, and do not demand much attention, but permit the thoughts to wander, and may directly encourage reveries and day-dreaming because of this monotonous character, so that many kinds of home employment do not benefit cases of these neuroses. Where this condition of affairs is present, it is often much better, with women especially, instead of trying to give them occupation in the house, to try to suggest other forms of work, such as gardening, poultry-raising, and other things which can be done out of doors.

The principles of treatment which underlie the prescribing and arranging of occupations for the patient with a neurosis must never be lost sight of, and the physician is not really treating his patient who advises a change of scene or a rest in the country, but needs to inform himself of the conditions under which the patient will be placed in the new surroundings, and to carefully arrange the mode of life and usually has to suggest occupation and the kind of work in order to obtain any benefit from the change. A woman with hysteria or neurasthenia, whether produced by an accident or not, is not likely to be at all benefited by being sent away to a hotel or boarding house in the South in winter, or the seaside in summer if the life at this resort is to be one of physical and mental indolence, passed in sitting upon a rocking chair on a piazza, with a novel clasped to the breast as if about to be read, while exchanging an account of symptoms with some other invalid.

Work, as a means of treatment in the neuroses, acts much more effectively for various reasons when this work is productive, which,

when analyzed, result in our finding that it is because it then continues to interest the worker, as artificial work is generally unable to do, and for most persons, particularly the less educated and cultivated persons, this is difficult to do unless this productivity is shown by some money value or return. Work of this kind undoubtedly produces the best results, and for this reason it is much better to return the patient to some regular employment, and if possible the one in which he was engaged before his illness began, as soon as may be, as nothing strengthens the idea of cure to the same extent as the proof to the patient that he can do part, at least, of the kind of work in which normal persons are engaged. Practically, however, our greatest difficulty often lies in finding productive work with which the injured person can begin, as anyone knows who has tried to find light work for someone who is crippled or incapacitated in some way, largely because employers and fellow-workers alike so often unite against allowing this, the employer usually because unwilling to give full pay for partial work, and the workers because of objections to any fellow-worker receiving part pay or being allowed to perform partial work.

In the beginning of this process of reëducation for work of various sorts, it is frequently of the greatest use for the physician to prescribe in minute detail the routine for the whole day for the patient, whether he is being treated at his home or in an institution, making a definite schedule or time-table for the whole day, which is enforced by the physician strictly, perhaps with the assistance of nurses or relatives.

Isolation.—In the severer cases of neurosis following accidents, particularly at the first, treatment in some hospital or suitable sanitarium is of the greatest advantage, and where this cannot be arranged for any reason, the nearest substitute for this, such as the method of treatment instituted at the patient's home, must be arranged to produce its benefits, by aiming to create the essential conditions of the institutional treatment. This can hardly be done without the aid of a nurse, and preferably one who has had considerable experience in the care of functional nervous cases. Perhaps of the first importance in this treatment is the isolation of the patient, and if important in all cases of functional nervous diseases it is doubly so in those which follow accidents, because, as we have seen, the production and full development of these accident neuroses depends to a considerable extent upon the mental reactions in the time following the receipt of the physical injuries, which, while they are undoubtedly largely unconscious reactions, are favored and in certain instances induced by the unwise solicitude and apprehension of relatives and friends, and no doubt to a minor extent by the interviews with lawyers, recounting to them all the details of the accident and the subsequent symptoms, and thus confirming the vividness of the psychical reaction at the time of the injury, and perhaps also its permanency. While this particular element no doubt exists and is real, it has been undoubtedly too much emphasized and too much influence ascribed to it, as has already been said, and this in particular in regard to the production of these traumatic neuroses.

Its importance has been greatly exaggerated for reasons which we have shown in discussing their etiology, and as indicated by the fact that hysteria has never been shown to have been caused by worry over a lawsuit and neurasthenic states from such a cause are distinctly rare, the writer in a large experience having only met with one such instance. That these unfavorable influences surrounding suits for damages, however, tend to prolong the trouble produced by the accident, is certain, but constitutes only one of a large number of unfavorable mental influences which tend in the same direction.

Influence of Lawsuits.—These facts which practically all neurologists admit, point out another indication which, when possible, should be followed in treating these cases, which is that the legal processes should be shortened. Under the legal methods adopted in this country, this unfortunately cannot be done very often, and is generally beyond the control of the physician, whose efforts in this direction usually have to be limited to advising the patient and friends to agree to a settlement, of the suit for damages, where one exists, out of court, when such a settlement can be arranged. Here, again, we see in general use a policy which is most unfortunate, certainly from the point of view of a physician who is primarily concerned in producing as rapid a recovery as possible, both for the good of his patient and that of the community. Because of various circumstances which we need not consider in this connection, most of the suits for damages for personal injury are brought against public service corporations, particularly transportation companies, and for various reasons, partly, no doubt, because of the multiplication of claims of this sort, frequently for very trifling injuries, and also partly because of a large number of fraudulent claims, it has become very generally the policy of these companies to refuse to settle any such claims, paying damages only when awarded by a court as a process of law, or what amounts to the same thing in this connection, only paying damages without an order of the court, when the strength of the claim after a trial of the case has begun has been shown to be such that the lawyers feel certain that a jury will award a verdict for the claimant. Aside from advising settlement of claims, the ways of shortening the long-drawn-out complications of legal proceedings under our present methods, is outside the field of the physician, except in so far as he can lend his influence toward this object as a citizen. The need of shortening all legal processes is one which is well recognized by the legal profession and is being considered by it at the present time with great care. A step which will doubtless be taken before long in most of our States is to shorten by various ways the present long lists of cases pending. Probably some relief to the crowded court dockets will be given by the action of such laws as that recently enacted in Massachusetts in regard to workingmen's compensation, which lessens the number of legal points to be decided in a case.

This law has been modelled largely upon the laws in regard to workingmen's compensation in force in Germany, and it may not be out

of place to call attention to one effect of this law, spoken of by almost all German writers. Under the German law the compensation to an injured workman is not paid as a single sum of money, but consists of weekly payments, the amount of which can be increased or diminished as the condition of the injured man changes. This requires repeated medical examinations and hearings by the tribunals having jurisdiction over these claims, and such repeated processes act most unfavorably upon cases of neuroses, so that not infrequently such claimants come to look upon every attempt, not merely to reduce his compensation, but even to cure him, as something unjust, and all such efforts at length come to be made upon an unwilling person, and so are likely to be useless.

It is not unnecessary, perhaps, in speaking of the advantages of shortening legal proceedings, to mention one possible disadvantage, namely, that many troubles produced by accident, and in this is included not merely the neuroses which we are discussing, but the same is true in regard to many organic troubles, may develop slowly, and in such cases, unless provision be made for reopening them, severe injury and injustice may be done to injured persons.

Hospital Treatment.—Nurses.—In the severe cases of the traumatic neuroses, probably the best treatment, particularly at the first, is some form of hospital treatment. Usually, however, such cases do not do well in a general hospital or large wards, except, perhaps, while surgical injuries, fractures, contusions, sprains, and such things are under treatment. The reason for this lies usually in the fact that in general wards there are too many cases coming and going, patients dying, being removed for operations, or returning from them, and in general too much commotion; and is also due in part to the fact that neither nurses nor the hospital internes have enough experience in treating or caring for cases with nervous symptoms, and the patients usually receive too little attention or at times too much. The treatment of these neuroses is largely psychical, though very often this can be greatly aided by various physiological methods, and to some extent by drug treatment. In part, and a very important part, this psychical treatment consists in withdrawing the patient entirely and continuously from unfavorable influences, and we mean by this chiefly mental influences such as the undue excitement, anxiety, and sympathy of friends and relatives, interviews with lawyers and claim agents, and everything of this nature. That is, briefly, the patient must be isolated, and this in some cases may be partial, where the patient is in a small ward, perhaps separated from others by screens or curtains, or it may be absolute, where the patient sees only the nurses assigned to the case, the person giving massage treatments if they are used, and the physician. In choosing a nurse for cases with psychoneuroses it is very important to get a suitable one, one with human sympathy, and yet calm and reassuring in manner, with firmness in order to see that the routine and treatment ordered are carried out, and above all with tact in handling patients and situations.

All these things can rarely be found except where the nurse has already had some experience in the care of neurasthenic and hysterical cases. Then, too, it is seldom advisable to allow one nurse to take charge of a case for too long a time. Even the best nurse and one accustomed to such cases grows fatigued from the continued strain, and so becomes incapable of handling the case properly. It is seldom that a nurse is useful for longer than six months with the same patient, for even when not greatly fatigued she becomes "stale," her ingenuity in meeting the objections and complaints of the patient exhausted, as well as her patience, and cheerfulness, all of which are absolutely essential to producing the mental effect aimed at by the method of treatment. Encouragement of the patient and persuasion exerted to secure coöperation in carrying out the physician's directions cannot be obtained either from an unsuitable nurse or from one who is fatigued, or from one who is distasteful to the patient. If the patient conceives a distinct dislike to the nurse, no matter how unreasonable, her usefulness for that case is over, and yet in avoiding this difficulty there is the opposite one to be thought of, namely, that the nurse may please the patient by acquiescing in all the whims and desires which come up. For the isolation treatment or rest cure a nurse who also can read aloud pleasingly is an aid, as this helps to pass the time and divert the patient's thoughts from his pains or other symptoms.

Dietetics.—During the period of rest in bed, feeding should be frequent and in small amounts at a time, the kinds of nourishment given being such as can be easily digested and assimilated, and as varied as possible, and by attention to the diet, the digestive disturbance which may be present, particularly at the beginning of the trouble, can readily be controlled. A knowledge of the resources of modern dietetic methods in the management of the nourishment will be found to be of the greatest use to the physician, especially in giving a more varied diet than that exclusively of milk, which was formerly the rule in carrying out a "rest cure," and in meeting the patient's dislikes for certain articles of food, and also in gaining the patient's confidence in the skill of the physician. It has already been said that aside from withdrawing the patient from the unfavorable mental influences which almost invariably surround him, the chief merit of the rest cure in the psychoneuroses undoubtedly lies in the opportunity it gives to the physician to influence his patient by means of encouragement.

For diet during the period of absolute rest, milk is the most available thing and the one most generally acceptable. One may usefully add to it egg-albumen, cream or milk sugar, or supplement it and vary the diet by using gruels or cereals, and at times, chiefly for their convenience of preparation, some of the proprietary foods, though this is hardly necessary except where the treatment is being attempted in the patient's home. Strict liquid diet is seldom required for more than a comparatively short time, and then by gradually introducing other articles, as eggs, fruit, breads, and finally vegetables and meats; the patient should be brought back to a general mixed diet as rapidly as possible,

but during the whole time of the rest treatment it is usually advisable to retain the plan of feeding at frequent intervals, generally five or six times during the twenty-four hours. The objects of the frequent feeding and the simple food are several. First, to remove symptoms of gastric irritability, as distress, flatulency, eructations, vomiting, and so on, which may be present, and then to restore any loss of weight, if it be present, whether due to digestive disturbances or simple loss of appetite, and also and not least to break the monotony of the isolation, and to favor the development in the patient's mind of the idea that something in the way of care and treatment is being carried out, which will relieve his troubles.

Psychic Treatment.—When we are dealing with intelligent persons, encouragement to disregard troublesome symptoms and to persist in carrying out directions given in accordance with a plan of training the patient to withstand the fatigue of normal life has the most effect when the physician has a broad understanding of the method of origin of various symptoms, and can by explaining them and their origin to the patient, allay the feelings of apprehension in regard to their significance and seriousness. Dubois, in his writings on the psychic treatment of nervous diseases, gives many useful explanations of this method. With explanation of the significance, or rather of the reason for the insignificance of individual symptoms, the physician can usually secure the coöperation of the patient in the efforts made for his cure, especially if this be accompanied by a certain amount of indifference of the physician and the nurse to the symptoms, and the absolute absence of any indications of concern or alarm, while this can seldom be done by mere statements that a phenomenon is merely nervous, though naturally the method of impressing upon the patient the desired mental attitude in regard to the symptoms and the whole disorder must vary with the individual who is being treated. With ignorant persons a mere statement that a symptom is nothing, if made with authority by a physician in whom they have confidence, may suffice, and at times simple direct commands.

Rest and Exercise.—During the isolation, absolute or nearly absolute rest in bed is advisable, at least during the greater part of the time, the return to being about the room and building being made gradually, but often quite rapidly after inprovement has begun. Hysterical patients with paralyses, or contractures, usually recover more quickly if rest in bed is continued until those symptoms have disappeared, the promise being made to them, when they begin to become desirous of getting up, that this will be permitted as soon as these particular symptoms have disappeared.

During the period of confinement to bed a substitute for exercise is desirable, and massage is by far the best method of supplying this; at first the gentler forms of treatment simply to improve the circulation and to accustom the patient to the treatment, and gradually the more vigorous and deeper massage methods. This should be accompanied nearly from the first by forms of exercise such as are comprised in the

so-called Swedish movements, at first passive movements of the extremities, succeeded by assisted movements, and finally by movements against resistance. The treatments are usually best given daily, and at first a partial treatment of a part of the body only, for not longer than fifteen or twenty minutes, which later can be lengthened to forty minutes, but should never exceed an hour at one time. Rarely, when the benefit is great, and particularly when recovery has gone so far that gymnastic exercises can be added, it may be advisable to have two periods of such treatment each day. By the use of such methods we can overcome to a large extent the disadvantages of the confinement to the bed, and at the same time aid in the quicker recovery from bruises and sprains, especially of the back, which is benefited more by massage than by almost any other form of treatment. To this is added the advantage that by these measures we can frequently attain the cure of hysterical paralyses and contractures by a combination of suggestion and training, or reëducation. To obtain the full benefit from massage and exercise of the kind which has been indicated, the services of a trained person are absolutely necessary, as sufficient knowledge of this form of treatment is not possessed by the ordinary hospital graduate nurse unless she has taken further training in massage and therapeutic gymnastics.

Electricity.—Exercise can also be obtained to a certain extent by the use of electricity, of which the faradic current is the most useful form for this purpose, and has the advantage that it can easily be given by the nurse with a little instruction. The indifferent electrode should be placed under the back or on some other convenient point, but best in the median line of the body, and the other electrode applied to individual muscles, the current being made and broken slowly, and made of just sufficient strength to produce a contraction in the muscles being treated, though at times fairly strong currents are well borne. Again, in cases with hysterical paralyses, the electrical treatment may be of great use, because, in the absence of change in the electrical reactions the muscles contract normally to the stimulation by the current, and if the patient is directed to attempt to perform the same movement each time the current is applied, it may aid greatly in restoring the function to the muscles. In such an instance we are undoubtedly dealing purely with a form of suggestion to the patient, but a most useful method of producing suggestion for cure. Other forms of electricity, especially the various methods of giving static electricity, and the high frequency current, may be used with advantage in these causes where they are available, but this cannot always be done because of the fact that most of the efficient forms of apparatus for giving these treatments are not easily portable, and so may not be available. It is probable that both of these forms of electrical treatment have some effect upon the metabolism of the body and so have some tonic effect, but in the psychoneuroses their influence is undoubtedly largely through suggestion, but they are frequently valuable all through the treatment of these cases, not only for their

general effect, but also for the relief of troublesome symptoms, particularly pains of various sorts, such as neuralgia, headache, hyperesthesia of the spine and elsewhere, and others of the same nature. It should not be forgotten, however, that the effects of the treatment must be explained to the patient, especially if the trouble is an hysterical one and the patient prepared for the treatment, because if startled by the apparatus and sparks, or similar things, there is not only no benefit, but sometimes positive harm done.

The details of isolation treatment or rest cure, like the ordering of the daily life of the patient who does not require this treatment, are best regulated by the preparation of a schedule by which the regularity of the treatment is insured and the occurrence of long periods of quiet in which the patient can dwell upon his condition and prospects prevented.

It will perhaps be self-evident from what has been said that to carry out a rest cure treatment in all its details, an institution where attendants trained in this work and other conveniences are at hand is best, and such an institution is preferably a small one. At times in a small hospital for convalescents or in a small hotel or boarding house, the treatment can be well carried out if a suitable nurse be available. Such treatment is much more difficult at the patient's home unless the coöperation of the family be hearty and complete, and then only in the better class of homes. For these reasons such a method of treatment is out of the question for many cases which would be benefited by it, but nevertheless, many of the principles which determine its effectiveness can be borne in mind in the treatment of persons who are less favorably situated, and aid in their cure, not less, except as they may be counteracted by unfavorable circumstances and surroundings.

Hydrotherapy.—Both in the treatment of cases in which the rest cure is being used and afterward, and in that of cases where this is impossible or is considered unnecessary, hydrotherapy in its various forms is of great use, both in improving the general condition and for its mental effect. This is best carried out in hospitals, sanataria, or bath institutes, where trained attendants are available and which have the more elaborate forms of apparatus, such as that of Baruch, with electric-light cabinets, and sprays and douches in which the temperature and force of the water can be regulated accurately and at will. These treatments should be begun gradually, using first cold-water friction at a temperature of 70° F., gradually reduced to 50° F., perhaps preceded by the electric-light cabinet for five minutes, and proceeding gradually to the so-called tonic bath, where the prescription is first the cabinet for from five to ten minutes, followed by a circular spray or needle bath for 20 to 30 seconds at a temperature of 105° F., and then for 30 seconds to one minute at 90° to 50° F., at a pressure of 8 to 10 pounds gradually increased to 15 pounds, followed by rubbing down and a rest period, and at times adding the jet and fan douche of cold water 90° to 50° F., at gradually increasing pressures of from 10 to 20 pounds in

successive treatments, or the alternating cold and hot douches, only used carefully, and after the patient has become accustomed to the treatments. More effect is usually obtained by these treatments if given daily for three or four weeks, and this course of treatment can be repeated from time to time if necessary, or the treatments may be continued two or three times a week after the first three or four weeks. The local treatments of painful joints by alternating hot and cold sprays and douches is often very effective, particularly where there are still remaining some of the effects of a joint injury, such as thickening or relaxation of ligaments.

Simple forms of home treatment by hydrotherapy may be used where the more elaborate bath institutes are not available. Those which can be carried out by the nurse or the friends with directions from the physician are the cold-water frictions to which salt may be added to aid the reaction, cold sponging or cold sprays, but given with the patient standing in warm water, or warm sprays followed by a cold one, the drying being followed by light rapid friction of the skin, one of the most useful methods of treatment, not only for the stimulating effect upon the circulation, but also for the relief of troublesome hyperesthetic areas or paresthesiæ. The cold drip sheet is easy to use in the home, and is more stimulating than the spraying done with only the range of temperature and pressure available in the home, but friction must be used both through the wet sheet when applied and afterward. Cold packs, lasting for 20 to 30 minutes, can also be used in almost any home, but are generally rather more difficult to manage. The hot pack at night, at a temperature of 100° to 105° F., for 20 to 30 minutes or even longer, with the head well covered with a towel wrung out in cold water, forms one of the most useful methods that can be used for combating the sleeplessness and the restlessness at night, as well as the delirium which is occasionally seen, whether treatment is being carried on at institution or at home. The spinal douche of cold water, or of hot, followed by cold water and then brisk, light friction, is one of the most useful methods of treatment of the spinal hyperesthesia and sensitiveness so often seen. The cases where there is still present a true traumatic lumbago from the injuries to the muscles of the back, and particularly where there is sensitiveness of the spinal ligaments, as shown by the presence of muscular spasm on passive motion of the spine, are best treated by braces or the leather corset, worn for a long time, as well as the use of massage or these hydrotherapeutic measures, or both.

Suggestion.—This is the most useful form of treatment in all psychoneuroses, and not less in those following accidents or injuries; but in most cases it is best applied indirectly by the methods which have been described, in which it enters largely and upon which they largely depend for their usefulness. The effectiveness of the methods of suggestion, used in the narrow sense of directly or indirectly introducing an idea into the person's mind, which influences his mental state and reactions, is identical in result with the results upon the psychical

processes produced by persuasion, command, or reëducation. Babinski would limit the term "suggestion" to those producing or favoring abnormal mental states, and substitute the term "persuasion" for suggestion used in a therapeutic manner, a limitation of the term which has not been generally followed. Reëducation, however, is more than mere suggestion, as its aim, when carried out to its proper goal, is not simply to remove the symptoms of which the patient complains, but by readjustments of psychical processes produced by the training, explanations and advice, to produce in the individual a new mental and emotional stability. Direct suggestion in the accident neuroses in the hypnotic state, as in other psychoneuroses, has little place. Occasionally, with ignorant persons to whom the appeal through the apparently supernatural is the most effective, it may be of use, but chiefly to remove some particularly troublesome or obstinate symptom, or in order to obtain an influence over the patient which will enable one to induce him by faith in his physician to carry out his further directions. Frequently, however, the hysteric cannot be hypnotized, and probably more frequently in the traumatic forms where counter-suggestions are so frequently found.

Psychanalysis.—The psycho-analytic method of Freud, of studying the evolution of the psychoses by the recounting by the patient of his previous emotional history and past events, searching especially for gaps in the account, as indications of resistance to the revival of disagreeable affects, has been little used in the traumatic hysterias. It remains to be seen whether cases of this sort which apparently have their origin from a sudden emotional shock, the psychical trauma of Binswanger, are due to repressions perhaps dating from childhood which are capable of being relieved by the cathartic method. It seems most probable that they are more closely allied to the cases of hysteria from psychical trauma, such as the loss of a beloved friend or relative, in which case the loss being conscious, no relief or ab-reaction can be obtained by any frank discussion.

Medicinal Therapy.—Treatment by drugs requires only brief mention, as like the various physical or physiological methods which have been described they are merely aids, and that not so much in the reëducation of the individual, but rather of use chiefly to give temporary relief from symptoms, or are mere pegs upon which to hang suggestions in the case of the ignorant and those who demand treatment by drugs, if we leave out of consideration the effects of tonics of various sorts, and possibly drugs which influence the sympathetic nervous system of which as yet but little is known. Bromide is perhaps the one most often useful, whether to lessen restlessness and induce sleep, to control the irritability of the vasomotor system, or to counteract hypochondriacal dwelling upon minor nervous sensations, paresthesias, or what not. It may frequently with advantage be combined with hyoscyamus, ergot, or arsenic when the effect of these drugs is desired upon the symptoms, or conditions which have been indicated. Bromide, however, should not be continued for long periods of time

without intermissions, as in this case it may of itself increase depression. To these drugs may be added some form of iron or bitters for the effect upon the appetite, or other tonics, such as the glycerophosphates, strychnine, and others. At times, strychnine, digitalis, caffeine, or other drugs are required for their effect upon the circulation, or symptoms on the part of the heart. As a rule, much treatment of special symptoms, particularly in hysteria, reacts unfavorably, and this is true especially of treatment by drugs, but some symptomatic treatment is usually unavoidable, either because of the troublesomeness of the symptom, or its effect upon the general condition, such as insomnia for example. This is best treated by warm or cool packs, or by hot or cold foot baths always to be given with friction, but at times may need to be checked by the use of hypnotics, of which the most useful, because of its unpleasant taste, which tends to prevent the formation of a drug habit, is paraldehyde. This when given should be taken in full doses of a teaspoonful to a teaspoonful and a half. For pain and headache, rest, cold compresses, hot fomentations, the various forms of electricity, massage, vibration, or other methods of this nature are most advisable. Rarely should one give any form of analgesic, even of the less harmful coal-tar products, such as phenacetin or pyramidon, particularly when the pain is evidently an hysterical one, in which case the drug is usually ineffective at any rate.

The proper treatment of hysterical paralyses by massage, faradism, exercises, as aids to reëducation, has already been indicated in what has been said. Hysterical contractures are cured by the same or similar methods, but often yield to douches of cold, or alternating hot and cold water. Alcohol and tobacco should in general be prohibited, the former absolutely, and the latter usually, except in very moderate quantities, and not often this much.

Prognosis.—The prognosis, in general, of the traumatic neuroses, as of those where there has been no accident, is good as regards danger to life, but poor as for complete recovery. Rapid improvement after the settlement of claims for damages is not the rule, though occasionally instances are seen, nor does this always imply that the symptoms have been feigned, nor even that the litigation plays much part in producing them, but is dependent upon the nature of these neuroses. The chief danger to life is seen in cases where there are heart symptoms, or where there has developed a rapidly increasing arteriosclerosis, or in cases where a presenile dementia or a psychosis has developed, in which there may also be danger of suicide.

Complete cure is rare, but the prospect for this is better in the cases of neurasthenia, and worse where there is present a large hypochondriacal element, and especially when in addition to this there are repeated or long-drawn-out legal hearings. The prognosis for complete cure is rather better in the pure forms of hysteria, and good in the hysteria of children, though the duration is always uncertain, while in the hysteroneurasthenic types the prospect of complete restoration to health is poor, some partial disability frequently remaining. This

disability may be partial or complete, and may at times last for life, cases having been reported by Prince and others, which had lasted well over twenty years, and one case of hysteria, known to the writer, in which there was paraplegia following a carriage accident, had not improved in forty years, a case by the way in which there was never any litigation. It is estimated that about 8 to 10 per cent. of patients remain disabled so that they are unable to resume their former occupation. The large majority after a longer or shorter time are able to resume work, but frequently for a further period do not feel fully restored and "like themselves." Eventually the great majority of these probably recover entirely. The exact determination of the percentage of complete and partial recoveries is almost impossible unless carried out by some railway company, as Bailey has suggested.

In general, neurologists consider the prospects of these cases of the neuroses less good than other physicians, partly because of greater experience with them, and the difficulties of their cure, and partly, no doubt, because they are apt to be consulted by the severer cases which have not recovered under the treatment of the general practitioner, or to see the cases which are to be examined in the course of litigation for an opinion. Certainly all unfavorable mental conditions retard, or may even prevent, the recovery of these patients and the mental influences of litigation the repeating of the story of the accident and symptoms to lawyers and physicians, the repeated examinations for symptoms, directing the attention of the patient to them, the dread of appearing on the witness stand, the worry over this and the final outcome of the lawsuit, are such unfavorable circumstances, and if continued and repeated may produce a mental state in the patient such that he is no longer willing to be cured, and rather resents attempts at cure, as the experience in Germany under their workingmen's compensation law, with its weekly indemnity and repeated hearings in regard to this, has shown. Hysterical cases, while sometimes cured suddenly, are prone to relapse, especially under emotional strain, and a certain proportion of cases are incurable, probably because the hysterical dissociation has become firmly established, and this is most often seen where there have always been traces of a hysterical type of constitution, or where it is of a degenerative type.

In all the forms of traumatic neuroses the prognosis is worse in older persons, especially those in whom arteriosclerotic changes have begun, or follow the accident, and this prospect is worst of all in those cases with arteriosclerotic changes of the cerebral vessels, where there has been a concussion of the brain, such cases quite frequently developing a dementia which is progressive and incurable, similar to the arteriosclerotic dementias without accident.

A further danger which in a certain proportion of cases affects the prognosis is that of the development of a psychosis, which has happened in a number of the cases seen by the writer.

TRAUMATIC PSYCHOSES

Types. — Depressed State. — The most frequent type of psychosis developing after trauma is probably a depressed state, marked by querulence, sometimes with irritability, and sometimes with violent emotional explosions, the development of delusions, and finally a greater or less degree of dementia. These cases seem more common where there has been a considerable element of hypochondriasis throughout the neurosis, and usually appear late as a sequence to the hypochondriacal neurasthenia or the hysteroneurasthenia.

Arteriosclerotic Dementia. — Arteriosclerotic dementia, with its forgetfulness, silliness, lack of application, and of emotional control, is also not infrequent, especially, as has been said, after blows upon the head or injuries which have been accompanied by concussion of the brain, and this dementia is secondary to the arteriosclerosis which, as has been said, frequently follows or is accelerated in its progress, when already present, by the physical shock of an accident, and probably also by the vasomotor disturbances produced in this way, as well as by the inactivity of the injured person. Occasionally an arteriosclerosis seems to be directly caused, even in a comparatively young person, by a combination of these factors.

Senile Dementia.—Occasionally a typical senile dementia makes its appearance soon after an accident, and in these cases the physical shock, and the fact that old persons stand such shocks badly, probably determines the time of the appearance of the symptoms; but here again, as in cases of organic disease of the nervous system following accidents, one should be skeptical and be on one's guard against being deceived by substitution of cause, it often being exceedingly difficult to learn accurately the mental state of the patient previous to the accident. Where the trouble has existed, or begun before the injury was received, it is still quite possible, and indeed frequent, that the claim that it began only after the injury may be made in good faith, as anyone with experience knows the frequency with which in cases where there is no accident he finds evidence of the existence of the disease for a long time before it has attracted the attention of the friends of the patient.

Dementia Due to Organic Defect.—In addition to these two forms of dementing mental disease, we also see not infrequently in cases of serious head injury where there has been extensive destruction of the brain the forms of mental failure which are grouped under the head of dementia due to organic defect, in which there may or may not be special symptoms like aphasia, paralysis, and the like, and this is similar to the cases seen after cerebral hemorrhage with forgetfulness, loss of interest in occupation and surroundings, and marked impairment of emotional control, the patient crying and laughing at trifles, frequently irritable, and even suspicious.

Dementia Secondary to Epilepsy.—Allied to this, as the two conditions may coexist, is the progressive dementia secondary to epilepsy;

where this develops after severe injuries of the brain, either with or without direct evidence of destruction of cerebral tissue by lacerations, hemorrhage, either massive or minute and multiple. Usually in such cases there is some definite sign of lesion of the cerebral tissues, either from the neurological examination of the patient, or locally, either by depressions of the skull or an *x*-ray picture; but this is not invariable by any means, as fractures of the inner table of the skull may not show in such a photograph, or the organic changes may be small hemorrhages at points where no symptoms are produced, and experience from autopsies of cases dying of contusion of the brain shows the most frequent seat of such hemorrhages to be at the tips of the temporal lobes and the inferior surface of the frontal lobes, in which situations no focal symptoms are produced by their presence. In these cases the first convulsions may appear only after a long time, even a number of years. It should be remembered, however, that many epileptics never develop epileptic insanity, which seems to depend more upon the frequency and severity of the convulsions than upon any other factor. Then, too, other mental states which are found in cases of idiopathic epilepsy may occur in the ones following injuries of the brain, whether minor symptoms, as irritability, fault-finding, and suspiciousness so frequently seen, or the rarer hallucinatory and maniacal states following or replacing the convulsions.

Mental Dulness.—The conditions following concussion of the brain, which may be severe or slight, have already been spoken of to a considerable extent in the preceding pages. We have mentioned the frequency of Friedmann's syndrome, of headache, pains, dizziness, and intolerance of alcohol, usually accompanied by certain vasomotor symptoms more or less marked, and it need not be dwelt upon at the present time. Not infrequently, however, we see in cases of this sort pure mental symptoms existing also, and these not infrequently are observed where there have been none of the symptoms of dizziness or headache, or where these have been present for a longer or shorter time and then passed away. This is the condition of mental dulness or stupidity, which may amount to dementia, and is seldom seen without the presence of marked intolerance to alcohol, which is so often found in Friedmann's syndrome. Of this mental dulness there are all grades seen. Rarely it may resemble congenital imbecilic states, constituting a true dementia, but without the symptoms of forgetfulness of recent events and others which are so characteristic of the senile and most of the arteriosclerotic dementias, the symptoms consisting more in an inability to learn, either in school or workshop, chiefly from lack of interest and power of attention, so that the person makes absurd mistakes, leaves work unfinished, is easily diverted, and does not retain what it learned or was told, to which is added lack of initiative and judgment. More frequently we see slighter forms of this mental dulness, with or without neurasthenic symptoms, in which the chief symptoms are slowness of thought, showing principally in mental work, and accompanied by many inaccuracies in the work, mental

inertia, with lack of interest in things which formerly were keenly enjoyed, especially in the intellectual sphere, but characterized most of all, perhaps, by weakness of the attention and early fatigue, which may show also in physical as well as mental work, though frequently only in the latter. At times there may be also a considerable degree of irritability or of mental depression, which, however, seems to be due, in large part at least, to the anxiety produced by the condition, dread of insanity, and such mental influences.

Delirious States.—Among the psychoses following injuries are to be included, also, a variety of delirious states, which are seen chiefly immediately after the accident, and soon pass away, but at times may be much prolonged. The severest types are seen after injuries of the brain of greater or less severity. Meyer divides these deliria into those from febrile reaction; the *delirium nervosum* of Dupuytren, not differing from postoperative delirium; the delirium of slow coma in alcoholic as well as non-alcoholic subjects; and protracted deliria with confabulation with or without alcoholic or senile basis.

Lastly, we must mention briefly the forms of insanity which are probably never directly caused by an injury, but in which injury may play a part as the exciting cause, either determining the time of the onset of the disease, or hastening the progress of the disease which has already begun, although it may have been unnoticed before.

Paresis.—First among these is paresis, which is almost certainly due in all instances to a preceding syphilitic infection, a point of view which has been greatly strengthened by recent advances in the diagnosis of this disease by modern methods such as the information obtained by the examination of the cerebrospinal fluid and the blood, both by tests such as those introduced by Wassermann and Noguchi, and by the reactions of the former fluid for globulin, and the differential count of its cellular elements. Upon such a basis there is no doubt, from clinical experience, that a case of paresis may be hastened in its progress and probably excited by a severe physical injury, particularly one affecting the head; but a case of paresis, started by an injury where this factor of preceding syphilis was certainly absent, has still to be reported, and the probabilities are vastly in favor of the opinion that such a case will never be reported. Here again, however, in many of the cases where the disease existed before the injury, the claim that it was caused by this may be made in good faith, as it is not at all uncommon for physicians to consider such cases as neurasthenic for a long time, and much more common, of course, for friends to overlook the symptoms entirely for an even longer time.

Manic-depressive Insanity, Dementia Præcox, and Paranoia.—Manic-depressive insanity and dementia præcox as to causation stand upon a similar basis, namely, the trauma can only be considered as a contributive factor in the causation and heredity, or the constitutional basis upon which they develop must be present, and is much more important. A similar view must be held in regard to paranoia, where

the constitutional basis is the important causative factor, injuries playing little or no part.

Prognosis and Treatment.—The prognosis and treatment of the various forms of psychoses caused by traumata, differs in no way from that of non-traumatic cases. The conditions of mental dulness and impairment of power of attention usually show some improvement in time through training, but generally this is only partial, and some impairment of mental vigor at least is usually permanent.

Legal Aspects.—In conclusion, a few words may not be amiss in regard to certain legal aspects of these cases which concern physicians. The first question for a physician to determine is whether the illness is a neurosis or not, which, by a man of experience, is easily decided after a careful and complete examination, except, perhaps, where some complicating disease exists. The question as to whether the disease is simulated should also be easily determined in most cases, the most difficult ones being where some single disability is claimed, as pain in a single extremity, with impairment of motion from the pain. Whether the symptoms are greatly exaggerated is more difficult to decide. A physician with experience in handling cases of various forms of neuroses can usually judge whether the complaints are in accord in general with those seen in similar or non-traumatic cases, and can usually decide this point fairly accurately, while other physicians, even of large experience in other lines of work, are more apt to err. To the question as to whether the accident was the cause of the illness, one is seldom in a position to answer positively, as one rarely has accurate information such as is afforded by a careful neurological examination before the injury was received, upon which to base a positive opinion, and usually one is forced to state that if the injured person were in good health before the accident, this would have been an adequate cause, and in the absence of other causes probably was the cause.

To the questions in regard to the prospects of cure or permanent or partial disability, as well as to the question of the amount of disability at any certain time, the answers are difficult, and often can be only approximate; but we have endeavored in the preceding pages, especially in those upon prognosis, to indicate the answers to them.

Expert Testimony.—The methods of trial of suits for damages in this country, which follow the English common law procedure in leaving the decision as to facts and the awarding of the amount of damages to a jury, has led to certain difficulties which have troubled the medical profession especially. Perhaps the chief of these has been the employment of medical experts by both parties in the suit who give opinions as to the amount of injury and the permanency of this, usually in reply to a hypothetical question, which is supposed to embody the facts of the case. As a matter of fact these questions usually only state the view of the case which the attorney is trying to establish, and an honest medical expert if asked would have to answer both questions in the way which was desired, as the questions embody different state-

ments of supposed facts. In such a state of affairs it is evident that a jury of ordinary intelligence can get no real information from the answers to such questions, and frequently ignore all the medical testimony, and are influenced in the decision entirely by other things, which obviously increases the liability of error. Aside from this the latitude of the courts in admitting physicians of little special experience to testify as experts, opens the door to great abuses, "an unholy alliance of unscrupulous physicians with so-called 'ambulance chasers,'" as one eminent jurist of Massachusetts recently characterized it, though the unholy alliances are by no means confined to those formed by unscrupulous lawyers for the plaintiffs.

These abuses led the members of the American Neurological Association, at the meeting in Baltimore, in May, 1911, to consider this subject and to embody certain recommendations in a series of resolutions, in the hope of influencing action to better the conditions, characterizing the present methods especially as regards neurological testimony, as inefficient, and failing to utilize expert knowledge effectively. The chief recommendations made, which should receive at least serious consideration by all persons interested in furthering justice in these matters, were that the judiciary should by legal enactment be allowed more latitude in the instructions to the jury in regard to the nature and meaning of the medical testimony; that freer use should be made of appointments of commissions by the court; and of preliminary consultation by the medical witnesses of both sides of the case as to its status; that they considered the hypothetical question as ordinarily presented to be unscientific, misleading, and dangerous; that laws should be passed by which injured persons could be placed by the court under medical observation for the purpose of report; and lastly, that medical organizations should formulate certain standards of qualification for medical men giving expert testimony, and specifically recommending as such qualifications for neurologists, that in order to be considered of the first class the physician should be a graduate of a reputable medical college, have paid special attention to the subject of neurology for at least six years, have had opportunities of laboratory and clinical study for at least four years, and be a member of some neurological society in good standing.

OCCUPATION NEUROSES

Introduction.—Nervous affections which disturb the sufferer in the exercise of his occupation or profession, or arise as a result of this, may be of various forms. It is not infrequent to see such disturbances, as, for example, the "stage fright" in public speakers, such as clergymen, not simply in the beginning of their work, from mere excitement and apprehension, but persisting for years. These forms of nervous affection properly belong among the various types of compulsion neurosis, and upon careful examination will usually be found to have

as a basis a phobia or obsession or in the Freudian sense a "compulsion." Cases of this sort have naturally been described in many occupations, not only in actors, preachers, public speakers, singers, pianists, and such professions, but in barbers and many other occupations; these, however, do not differ from other forms of obsessions except in the circumstances under which the disturbances arise. There is no essential difference, except in the severity and diversity of the symptoms, between a case of barber's phobia and the psychasthenic, or person afflicted with mania of doubt, who is unable to dress without going through a certain formula of actions, or cannot dress at all because of the inability to decide which stocking to put on first. It is largely this viewpoint, revealed by psychanalysis, that led Freud to group all of this type of phenomena under his compulsion neuroses.

Another class of nervous affections connected with occupation are those of which writer's cramp is usually taken to be the type. These occur in a great variety of occupations and have been given various names, in almost as great variety as the phobias. Besides the writer's cramp, similar affections have been described in typists, pianists, violinists, seamstresses, telegraphers, flutists, milkers, barbers, drummers, ballet dancers, sewing-machine operators, cashiers, cigar and cigarette makers, enamellers, tailors, artificial-flower makers, masons, turners, letter-sorters, compositors, painters; while in engravers and watchmakers, both the hands and the orbicularis by which the magnifying glass is held may be affected; and in clarionet players and players of other wind instruments and glass-blowers it may involve the tongue; microscopists, the accommodation; while in smiths it usually affects the deltoid and biceps; and probably the tennis arm, and the cramp of the forearm in fencers are of a similar nature.

Writer's Cramp as a Type of Occupation Neurosis.—The name of writer's cramp is not particularly fortunate, as pain is not always present, and the phenomena may be of the nature of pain, spasms, contractions, flaccid paralyses, tremors, ataxia, or even athetoid movements. Leri proposes the name of functional dyskinesiæ for this group, and defines those coming on during the act of writing as motor troubles, which come on only with that act, and have as a result difficulty or impossibility of writing. Oppenheim defines it as a disturbance of the innervation of the muscles, which occurs only in certain complicated movements which are acquired by practice, the muscle responding to the will in every other action. It has never been demonstrated that these troubles are always organic or always dynamic.

Paul has recently called attention to the frequency with which, in reported cases, symptoms and signs of organic disease, such as atrophy of muscles, areas of anesthesia, changes in the electrical reactions, pain and tenderness along nerves, particularly the radial, have been mentioned. Leri also speaks of certain cases of the paralytic form, in which one sees not only functional impotence, but signs of true organic paralysis, especially in the adductors of the thumb, often with atrophy, fibrillary tremors, and the reaction of degeneration; and calls attention

to cases where there were vasomotor troubles, which have been reported by Brissaud, and Hallion and Meige at the Congress of Brussels in 1903. In some cases there has been a previous injury, and evidences of contusions or periostitis are found. Other cases occur on the basis of a myositis or arteritis, or as a symptom in Bright's disease; thus we see in certain cases a resemblance to intermittent claudication. There is no doubt then that certain cases have as a basis a true inflammatory or dystrophic lesion.

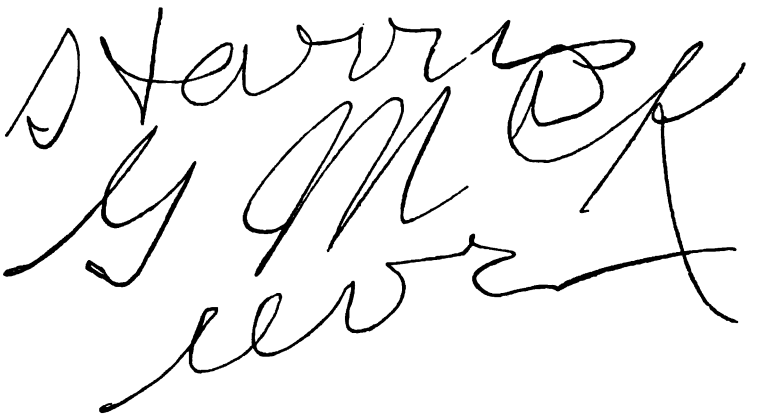
All writers think, however, and the same view was held in the discussion upon Dr. Paul's paper at the meeting of the American Neurological Association, that in the greater number of cases the trouble is a cortical or psychical one. Oppenheim, Leri, and previous writers all call attention to the frequency of other nervous symptoms. Leri states that objective troubles of sensation, or of reflex action, or of electrical reactions are almost never found, and that on the other hand one generally finds psychical disturbance and neuropathic signs, often evidence of hereditary neuropathic constitution in degenerates or unstable persons. The trouble often comes as a real perturbation of the will, and from emotionalism, like an aboulia. This is shown also by the cases, not infrequent, when the professional spasm is associated with various tics, especially with spasmodic torticollis, as in the case of Meige and Feindel, where the torticollis appeared only when writing, and in Audral's, where this came on when reading, and a writer's cramp when writing; or the case of Destarac, where there was writer's cramp, torticollis, and convulsive movements of the leg and foot. Haskovec has reported two persons with writer's cramp in the right hand, who learned to write with the left hand, and when writing with the left hand showed associated convulsion movements in the right hand, entirely analogous to those of the cramp, evidently a true tic.

In such cases we may speak of a cramp of idea similar to a tic of idea. The mental element in most of these professional dyskinesiæ is also shown by the frequency with which the intensity of the cramp corresponds to the amount of attention which is directed to the act. The will is almost always inhibited, preoccupation, fatigue, and emotions exaggerate the trouble, and the idea of writing, especially in public, or when being watched, makes it worse, while distraction diminishes it. The trouble is often a real professional tic, but without the ordinary type of muscular movements; the cause is the habitual repetition of a certain functional act; the localization, the group of muscles physiologically employed in this act. The character of the disturbance is impulsive and involuntary, and often obsessive. The irresistibility of the spasm shows the temporary inhibition of the will. The variability and sudden disappearances show the mental element, as is also especially true of the development upon a mental basis, which is predisposed and emotional, and often psychasthenic, or neurasthenic.

Forms of Writer's Cramp.—The various forms of writer's cramp may be divided roughly into the spasmodic and the paralytic types, of which there are several subvarieties, such as cases with and without

tremor. The tremor may be slight, resembling an asthenic tremor, or more often it is more choreic in character; but cases are seldom pure in type, and may vary at different times in the same person, or may be more or less mixed. The tremors are often mixed, with more or less weakness, so that the pen may be dropped; and the choreiform types, in which there are brisk, irregular dashes shown in the writing, and long strokes, and often holes in the paper made by the pen, are apt to have more or less spasm of the muscles. In the spasmodic form the person is usually able to write without trouble for a longer or shorter time, and then, with or without a sensation of fatigue, the thumb and forefinger extend or flex, together or separately, gripping the pen firmly, or letting it drop, and the middle and other fingers may be included in the movements. Usually, by an effort the writer is able to overcome these involuntary movements for a time by changing

FIG. 38



Spastic type, writer's cramp. (Jelliffe.)

the attitude or the manner of holding the pen, or something of this nature; but the spasm recurs, the writing becomes irregular, angular, distorted, or finally illegible, and the person at length is obliged to stop. As a rule when the writing is stopped the cramp disappears at once, and the person is immediately able to use the hand in all varieties of work except that of writing, without difficulty or discomfort. When the cramps in this form of neurosis are violent they are apt to be accompanied by pain, but this stops with the cramp, and, in some cases, this pain may at times at least occur alone without a true cramp coming on, but such instances are rare. Occasionally the cramps extend and involve the muscles of the forearm, or even of the arm and shoulder in addition to those of the hand. The common feature in these various forms is the lack of motor equilibrium. The tremulous spasm, as has been said, may be replaced by a tremor, involving only the hand or the hand and arm. At times, cases are seen in which the

movements resemble very closely athetoid movements, but these are exceedingly rare, and are distinguished, of course, from the athetoid movements dependent upon an organic lesion by the absence of other symptoms of involvement of the motor tracts, and by the fact that they do not appear in other movements than those of writing.

The paralytic form is characterized by the hand after a time rapidly or slowly becoming motionless, glued to the paper as it has been described, and is almost invariably accompanied by an increasing sensation of fatigue in the hand, or the hand and arm, or a feeling of numbness and of stiffness.

Course.—The evolution of writer's cramp is generally slow and gradual, but progressive. In the early stages of the trouble a pause in the occupation is enough to give relief, which lasts a longer or shorter time, and this may suffice during the whole course of the trouble. Usually, however, the symptoms grow more severe as time passes, and things which at first were sufficient to enable the person to continue his work, give very slight or no relief. The quality of the paper, the shape of the pen-holder, the comfortableness of the position influence the appearance of the symptoms, as does also the slower or greater speed of the writing. Sometimes, such sufferers copy with much less trouble appearing than when they compose what they are writing, an evidence of the psychical element in the origin of the disturbances. Not infrequently, transitory improvements are seen, which are remarkable for their completeness, as well as for the suddenness with which they come on and their temporary character; thus the patient may have his good days.

Treatment.—The treatment of writer's cramp varies greatly. Ordinarily the cases are exceedingly obstinate, and treatment by drugs is of little or no use. As in all instances where we are dealing with a syndrome rather than a disease entity, the first step is to determine with exactness, if possible, the cause of the symptoms. If a local dynamic condition be present, the cure usually follows the removal of this, so that one should examine with care for evidence of such a difficulty as shown by a periostitis, neuritis, or other conditions, as evidenced by local tenderness over limited areas along nerve trunks, atrophy of muscles, changes in electrical reactions, particularly a reaction of degeneration, fibrillary tremor, or distinct areas of anesthesia or hyperesthesia. Gowers very clearly calls attention to the danger of attaching too much importance to certain symptoms of this kind which we are all in the habit of regarding as indicative of organic lesions. Thus he states that the electrical irritability of the nerves or muscles may be perfectly normal or may present a slight change, increase or diminution, chiefly in cases that have lasted for some time, and that the change is usually the same to faradism and galvanism, and the degree of irritability is similar in both muscles and nerves Later, in speaking of pains which may be referred to the course of the nerves and even where these are found to be tender to pressure at certain points, he instances an instructive case he had observed in

which after a time pain was a prominent feature, and at the time he saw the case, two years after the onset, it showed tender points in front of the wrist over the median nerve, and another a little below the elbow, as well as some general tenderness of the median and ulnar nerves, and another tender point on the musculospiral nerve. The pain now occurred spontaneously, but was excited by any muscular effort, and the nerves presented a distinct increase of electric irritability, yet both the history and the character of the pain showed that it was secondary to writing, and a true occupation neuralgia. He also mentions another case in which the pains continued after writing was given up and were felt chiefly in the upper part of the arms, and then in both shoulders, and were brought on by emotion as well as by movement; and he adds that the sensory symptoms, when they once become prominent, often exhibit a strong tendency to spread, and sometimes acquire a relative independence.

It is probably in cases where there is a local condition such as myositis, periostitis, or neuritis that the most effect is obtained by drugs, such as antispasmodics of various kinds or antineuralgics, as bromides, aspirin, and similar things. The same is true of the cases which are cured by the use of various forms of electricity, as the mild faradic or galvanic currents, though one must not forget the possibility of benefit arising in cases where the effect is purely mental. Most writers agree that as with drugs, in most cases, no effect is produced by the various methods of using electricity. When electricity is of benefit, it is most often found from the use of mild galvanic currents of from 3 to 4 ma., and, as a rule, more benefit is obtained when the kathode is placed over the spine, and the anode over the brachial plexus, the nerves of the arm, or the muscles of the hand. Sittings should be given three or four times a week, and of rather short duration, usually fifteen to twenty minutes. Most writers state that several months of treatment is required before improvement is obtained.

Massage and friction are often palliative in their action, and more frequently of service, perhaps having a certain influence aside from that purely from suggestion, by relieving the abnormal sensations of fatigue or distention, which are so commonly present with the other disturbances.

Here, perhaps, might be mentioned the need of differentiating the cases in which the tremors or irregular movements which disturb the writing are the symptoms of a general disease; particularly the hysterical tremors, though occasionally athetoid movements, or spasmodic cramps occurring in organic diseases of the brain, as in cases of hemiplegia, may be especially troublesome during the act of writing. The differentiation is easy, however, if one seeks for the other physical signs of the disease, or even is careful not to forget that practically in all such instances the symptoms which disturb the act of writing are constantly or nearly constantly seen in other acts involving the use of the hand.

The other cases of which we have spoken already, in which the

syndrome is dependent upon a local arteritis, or a general intoxication, as in nephritis, should yield to the appropriate treatment of the underlying condition.

The treatment of the great majority of the cases where the character of the trouble, as already discussed, points to a fatigue neurosis affecting the psychical activities as the underlying condition, is apt to be somewhat unsatisfactory, and for various reasons. Very frequently this is from the nature of the trouble which most often originates in persons who have developed it through constant repetition of certain complicated movements which are acquired by practice. For this reason, writer's cramp is most often seen in persons who write constantly as a means of livelihood. Because, too, the living depends upon the continuation of their employment, they are most often not seen by physicians, and certainly not often by physicians engaged in practice largely or wholly confined to nervous diseases, until the trouble has already existed for a considerable time, and the patient has tried various expedients, such as changing the manner of holding the pen or using various kinds of pen-holders, with only temporary or no relief. In milder cases the use of a large pen-holder, the passing of the pen-holder through a large cork, or a disk, which is grasped by the hand as a whole, or the Nussbaum bracelet and other forms of apparatus, which spread the fingers and hold them in position, as a splint attached to the forearm with a round bar or roll at the end which the hand grasps, the pen-holder being attached to this, may result in the patient being able to continue his necessary work. The essential thing, however, in all these methods of treatment should not be lost sight of—namely, that the syndrome develops not only from excessive use of the hand in a certain series of coördinated movements, but most often in the excessive use of the small muscles of the hand which are thus fatigued, the sensation of fatigue undoubtedly having much to do with the subsequent mental reaction, and that in all these forms of apparatus the thing that is aimed at is the rest of these small muscles of the hand, although the writing is continued.

That fatigue plays a large part in the production of these functional dyskinesiæ is shown by the greater frequency of writer's cramp than of the special dyskinesiæ in other occupations, as well as by the fact that writer's cramp is seen mostly in those who write too much, or too fast, whose writing is pointed, small and cramped, and especially in those who use mostly the flexion and extension of the fingers in writing. The element of greatest importance, then, is a prolonged rest from the function which has been disturbed by the neurosis, and this must be either absolute or relative, as of the muscles chiefly affected. Gowers recommends that these persons learn to write with the other hand. He admits that not infrequently the disturbances appear after a time in this hand also, but reminds us that this may be a long time, in one of his cases twelve years, and that this permits the sufferer in many cases to continue his occupation, which very frequently he will not or cannot give up. Gowers also emphasizes the importance

of teaching the patients to write correctly, by which he means to teach them a mode of writing in which the hand is used as little as possible, and the movements are made practically entirely from the shoulder. Thus he directs that the person first be made to practice drawing a line straight across the paper from left to right, not resting the hand much if any upon the writing desk; then that he should make this straight line into a wavy one, and then into one resembling the strokes of a letter "m," with rounded strokes and not pointed ones, and thus acquire the ability to write with the arm, and especially the upper arm, as much as possible. Meige, at the Congress at Dijon, in 1908, expressed this method of learning to write, briefly, as follows: that these persons should write "little, slowly, in a round hand, large, and correctly." He also advised having these patients write simultaneously with both hands, that with the left hand being from right to left, mirror writing. Hartenberg recommends the use of elastic bands for twenty minutes twice a day. Probably more benefit could be obtained from this procedure in cases with an organic basis.

These methods are certainly the ones which prove efficacious in most cases and the most efficacious in all the cases. They should be supplemented, however, by a system of gymnastics or movements, and these both active and passive, which may be carried out by the fingers unaided, by the use of some machine, or by a teacher, especially one skilled in the use of Swedish movements, both passive, assisted, and against resistance, by which means one can form a system of carefully graded exercises for the muscles of the hand so varied in character as to avoid the development of fatigue, and in this way so improve the strength and resistance of the muscle to fatigue that eventually the hand can be used in the former occupation without the symptoms of the trouble returning. Such a treatment in the rational development of the muscles and the teaching of a new method of writing is, however something more than the mere turning the patient over to a person trained in Swedish massage and gymnastics, or to a writing teacher, or both. To be successful it must constitute part of a rational treatment of motor reëducation of the patient, which must be supplemented by a psychical reëducation, not necessarily through suggestion, either direct or indirect, but in the way of explanation to the patient of the mode of origin of his symptoms, so that he may avoid, if possible, the recurrence of them, or the possibility of the formation of new symptoms in a similar way. In other words, then, the training, as in the case of a tic, must be directed to the increase of the power of inhibition and the reëducation of the will. In both tics and functional dyskinesiæ most writers have found direct suggestion, as in hypnosis, of little or no use. The simple substitution of a typewriter for the pen is not always successful, as professional neuroses in typewriter operators are not infrequent.

In cases where the general nervous condition is disturbed, attention must be devoted to the treatment of this, either by the various methods briefly called psychotherapy, or the physiological methods of hydrotherapy and electricity, rest, exercise, and occupation.

The treatment of these professional dyskinesiæ in other forms than that in writers, usually presents much the same problem, though in many we have a larger proportion of pure neuritides or other forms of local organic disease, as has been shown by Hunt in his description of the neuritides. Such cases should be treated by various methods calculated to remove the local causes of the symptoms, which more frequently are those of pain or professional neuralgias, or paralyses, usually with atrophy, as in some cases of writer's paralysis seen by the writer where the presence of atrophy and changes in electrical reactions, fibrillary tremors and the course of the trouble showed the disease to be a progressive muscular atrophy of the spinal type.

Other Occupation Dyskinesiæ.—Thus Donath states that pianist's dyskinesiæ are more often characterized by paralysis, pains, and muscular atrophy. The forms seen in seamstresses, cigar makers, cutters, milkers, smiths, fencers, turners, base-ball and tennis players, and golfers are more often again not to be classed with the neuroses, but among the dyskinesiæ from an organic lesion of ligaments, muscles and nerves, tendons, bursæ, joints, or periosteum. Head, in Allbutt and Rolleston's *System of Medicine*, calls attention to the frequency with which many occupation cramps are dependent upon local organic disturbances and groups, such cases as secondary forms; and he speaks of this especially in regard to such cases as where a person in his occupation is unable to use a hammer, and states that published cases of this type belong under other groups than that of the professional neuroses. Generally there was pain in the neighborhood of the elbow, brought on by attempting to grasp anything firmly in the hand, and often accompanied by tenderness of the nerves, muscles, or periosteum over the insertion of the long extensors of the fingers just below the external condyle.

Typewriter's cramp, when it is seen as a pure neurosis, sometimes shows chiefly or only pain, and then is usually upon an organic basis of the kind already mentioned, but also is seen in the form of sudden straightening of one or more fingers with sudden flexion or extension of the wrist; but in the writer's experience an uncertainty and loss of control of the fingers so that the wrong key is struck, accompanied by a sensation of fatigue in the hands and arms, is more common. In these cases and those of pianist's cramp the treatment by massage, exercises, electricity, and especially rest seems to be the most efficacious; but unlike many cases of writer's cramp, it is especially difficult to enable the person to continue the occupation by correcting faulty methods of using the hands, or modifying the method of using the instrument.

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CHAPTER X

DISTURBANCES OF THE INTERNAL SECRETIONS—SYMPATHETIC SYSTEM DISORDERS

By HENRY A. COTTON, M.D.

THYROID GLAND; HYPERTHYROIDISM AND HYPOTHYROIDISM

Hyperthyroidism.—Exophthalmic goitre; Basedow's disease; Graves' disease.

Although it had been recognized as early as 1840 (Basedow) that mental disturbances are liable to occur during exophthalmic goitre, for many years these disorders did not receive the attention which their importance warranted, and this occurrence is much more common than we are led to believe by some authors, even today.

Just what proportion of cases of exophthalmic goitre develop mental symptoms cannot at present be determined, as very little information is found in the literature regarding this point. Observations of Graves' disease were formerly made principally by surgeons or physicians without psychiatric training, and for this reason definite descriptions of mental symptoms and classification of the psychic disturbances have been neglected.

Primarily the question appears to be, whether we have to deal with an entity which could be called a Graves' psychosis or whether these symptoms are merely concomitant and variable. From some of the more recent investigations it appears, however, that we can assume with some degree of accuracy at least, that the psychoses occurring in Graves' disease have a common etiology with the disease process.

Kraepelin has called attention to the importance of the mental symptoms in his last edition, and Packard, in 1909, reviewed the literature and analyzed 82 cases from a psychiatric standpoint. In 32 cases of this number the psychosis developed simultaneously with the disease of the thyroid. In the remaining cases the psychosis appeared at varying intervals from one to ten years, with the majority of cases showing a three-year interval between the Graves' disease and the psychosis. Nineteen per cent. of the simultaneous cases had had a previous psychosis, while 11 per cent. of the later psychoses had had a previous attack of some form of mental trouble. There was not enough variation in the symptoms of the simultaneous and later developing psychosis to be of any significance. The form of mental disorder found in these various cases is of interest, and corresponds with investigations

made by others. In a large number of cases the symptoms vary from depression with anxiety to manic exhilaration, excitement, and apprehensiveness, and to some extent the symptoms resemble the psychoses found in the involutional period in women. One of the most common symptoms found was irritability, which seems to be constant in the majority of cases. In the depression there is a tendency to the development of mixed states, characterized by depression with motor activity.

The question of heredity seems to play an important part in this psychosis. Packard found heredity for mental diseases in 63 per cent. of his cases of exophthalmic goitre. The same author came to the conclusion, from the results of his analysis, that since 63 per cent. exhibited marked hereditary taint, and a psychopathic or neuropathic make-up was present in a large number, together with the fact that 15 per cent. had a previous psychosis, that we are dealing with individuals in whom a psychosis may have developed in the absence of Graves' disease; that this disease is only an exciting cause, although, perhaps, an especially strong one.

Packard holds the view, as a result of his analysis of his patients, that in the majority of the cases where a psychosis was developed, the time of origin of the psychosis after the onset of Graves' disease is somewhat proportional to the predisposition of the individual to insanity the most susceptible losing their mental balance at once. We must of course acknowledge that the strength and character of the toxins, if such be the cause, may vary in different cases, but it seems reasonable to believe that the occurrence of mental symptoms in the condition depends largely upon the factors of psychic hereditary taint, neuropathic make-up, and emotional stress and strain.

Etiology.—The etiology of Graves' disease is as yet unsettled, and until we know more about this etiology and the etiology of abnormal mental conditions we cannot settle the question.

As to the part grief and worry play in the etiology of Graves' disease, there is a wide difference of opinion. Kraepelin rather inclines to the view that emotional disturbances play a very important etiological role, while Packard did not find such psychic etiological factors preceding the Graves' disease, save in a few of his cases. That psychic factors must be considered is apparent to those who have closely investigated these facts, and disturbance of the emotions, fright, worry, anxiety, etc., with or without combined physical overexertion, particularly in those of psychopathic personality, seems frequently to have a direct causal relation to the disease.

While it is difficult to separate the various causes or to get a clear picture of the combination of causes in this disease, one must admit that there is a very close connection between emotional disturbances and the activities of the thyroid gland, especially in women, with their emotional irritability and psychopathic tendencies, and it is in women that we find a preponderance of the disease.

Moebius has shown that a number of the symptoms of Basedow's

disease, the exophthalmos, palpitation of the heart, tachycardia, tremors, sweating, and diarrhea may also be found in severe fright, and thus Basedow's disease may be similar to and resemble a "crystallized fright."

From the fact that glandular activity can be induced and influenced by severe emotional disturbances, such as is noticed, for instance, in the lacrymal and salivary glands, Kraepelin argues that it is not unreasonable to suppose that in great mental and emotional excitement the thyroid can be similarly affected. However, we must not lose sight of the fact that the increased activity of the functions of the thyroid gland may in itself affect the emotional life of the patient, and a decrease in its activity may lead to stupidity and dementia.

Formerly the condition of exophthalmic goitre was supposed to result from changes in the medulla oblongata, but the work of Moebius has shown, conclusively, that the disease exists through the morbid thyroid gland whereby there occurs a pathological increase in the amount of the secretion of the gland, and probably a qualitative change in the secretion as well. As a proof of this view, we know that by feeding thyroid extract we can produce symptoms of the disease, *i. e.*, such as tachycardia, tremors, restlessness, sweating, etc. Also, it is a well-known fact that very severe and serious effects result from administering thyroid extract in cases of clinical Graves' disease. Another ground for this opinion concerning the etiology is that contrasting symptoms occur in Basedow's disease and in myxedema. In the former, restlessness and excitability, in the latter, sleepiness and stupidity; in the former, severe sweating, tachycardia, and sensations of heat, in the latter, slowing of the pulse, sensations of cold, and absence of sweating. In the former, tendency to diarrhea and increased action of the kidneys, in the latter, constipation and decrease of kidney function.

SEX.—The occurrence of Graves' disease in females (five times or more to one in males) also speaks for the primary disease of the thyroid gland, as we know that the thyroid gland is much affected by the different periods of sexual activities of the female, and also during menstruation and pregnancy. Furthermore, most cases occur between the ages of sixteen to forty, and cases are seldom found in persons over fifty. The relation to pregnancy is variable. Sometimes Graves' disease occurs during pregnancy, or in the puerperal period or later. Often patients improve during pregnancy and do not relapse afterward.

PREDISPOSING FACTORS. — As already pointed out, the effect of an hereditary taint and psychopathic personality act chiefly as predisposing factors to the development of mental symptoms. As directly predisposing physical causes, the most important factors are infectious colds, sore throat, tonsillitis, or other acute infections which seem to precede exophthalmic goitre, and which in patients with a simple goitre seem at times to form the connecting link with Graves' disease.

Secondary syphilis has been found to occur frequently in the early history of the disease in young married women.

Other diseases which occur in a similar connection are acute articular rheumatism, typhoid fever, scarlatina, measles, whooping cough, mumps, and malaria. The frequency of this disease in tuberculous subjects has also been noted.

Some writers have called attention to the frequency of gastro-intestinal disorders.

On the whole, it is obvious that the real cause of the disease is obscure, and that many of the etiological factors must vary much in their mode of action. Some, such as sex, must be merely predisposing, and the same can be said of the neuropathic conditions. Others, like shock, worry, and psychic factors, may act by arousing a latent disease into activity. Infection seems to be capable of bringing the disease on more directly. But it is probable that we often have a combination of etiological factors, whereby we have a nervous stimulation of the thyroid gland, and also a general stimulation by toxic, infectious, or metabolic substances.

The Mental Symptoms.—The fact that most of the cases of Graves' disease have not been observed by psychiatrists leaves us somewhat in doubt as to the real type of disease, whether or not we are dealing with an entity, or only various mental symptoms occurring in an isolated manner. Packard has added much to our knowledge.

In considering the mental picture of psychoses associated with Graves' disease, we find that certain symptoms can be called almost constant, and others occurring frequently. Some symptoms noted in the psychoses accompanying Graves' disease may occur as isolated symptoms in cases without psychoses. Thus, depression, apprehensiveness, irritability, and excitement may be found in both types.

The mental features may show great variation. Packard found many essential depressions, and a number of essential exhilarations. Some cases showed in their course depressions followed by exhilarations, and a number were essentially delusional conditions, while still others showed a typical delirium. Probably as much variation as is found in functional psychoses not associated with Graves' disease. Some of the cases closely resemble dementia præcox, but apparently recover without any dementia. With the depressions motor retardation is not common but rather the reverse; motor activity is combined with the depressions. Apprehensiveness and irritability seem to be the most frequent and constant symptoms, and hallucinations are much more common than is usual in depressions. The prominence of hallucinations would suggest a strong toxic feature in the disease. One of the characteristic symptoms, according to Kraepelin, is a very marked irritability in the emotional field, particularly as shown in the increase of emotional excitability.

In a majority of cases the patients show for a considerable period single isolated symptoms of nervousness, variability of the emotions, excitability, anxiety, impulsive ideas, fainting spells, sleeplessness.

With a gradual or rapid development of the symptoms of Graves' disease there occurs a certain diminution in the mental capacity of

the patient. They are incapable of much mental effort, and have no reserve mental force, neglect their obligations, and become easily fatigued. Their judgment is defective, influenced greatly by the emotions, so that it is one-sided, prejudiced, unjust, often too hasty, and without much consideration. Also the memory is apt to be very unreliable. Now and then beginnings of transitory delusional states are found. Suspicions concerning the surroundings, groundless prejudices are aroused and delusions of jealousy develop. The hallucinations are rather of the visual type, particularly before going to sleep. With all these various mental symptoms, good insight is often retained.

The *moods* are very changeable, as a rule. In a majority of the cases the patients are exhilarated and worry very little about their condition. In others, depression with marked anxiety and hypochondriacal ideas seem to be the most prominent symptom. Regularly the patients are capricious, whimsical, irritable, and sensitive to an extreme degree, and show sudden outbreaks of temper. But at the same time they may be indifferent to the important occurrences and experiences. Usually they are talkative and voluble, exhibiting very active movements and gestures. They become bold, perform unlooked-for and bizarre actions. Others again are shy, confused, or anxious. The *sleep* is often inadequate and interrupted by weird dreams and attacks of fright. The weight is apt to decrease, even though the patient takes sufficient nourishment. Often there is a marked *change of personality*, habits, and customs. The patients become pleasure-seekers, talkative and gossiping. They overdress and spend a great deal of time in primping and adornment. Against former custom, they go frequently to the theatre, concerts, and social gatherings.

In the delirious conditions there seems to be a prominence of certain psychical symptoms of the disease, which in other cases may be somewhat lighter. These phenomena may be compared to the mental disturbances accompanying various fevers. Experiences met with in overdosing with thyroid extract, thereby producing various forms of delirium, would tend to substantiate the view held by Kraepelin, that the delirium is the result of extremely toxic conditions. But he claims that the material is too small as yet to come to any definite conclusions regarding particular types of psychoses to which these mental symptoms belong.

Hyperthyroid Temperament.—As to the lightest form of hyperthyroidism, Levi and Rothschild speak of a "hyperthyroid temperament," with distinct personal characteristics which may be permanent or transitory. Such characteristics are described as follows: Large slender stature, excessive growth of hair, extreme leanness, tendency to perspire, active winking, a tendency to undertake great things, unreliability, irritability, variation in moods, rapidity of decision, active movements, restlessness, diminished need for sleep. But Kraepelin considers it doubtful whether we can link these formal characteristics with hyperthyroidism as a causal factor.

Basedowoid Types.—Stern makes rather an important distinction in the types of hyperthyroidism. Aside from the symptoms, both mental

and physical, which characterize pure Basedow's disease, he distinguishes another class as "Basedowoid" types. According to his classification, the pure cases would be those where the disease developed in persons without any previous nervous symptoms, and who recovered or died from the effects of the disease, or where the disease process remained stationary for a long period, or showed symptoms of a gradual progressive character covering a long period of years. As "Basedowoid" types would be classed the masked type, which have their onset in early childhood, with an incomplete symptom-complex. During the course of the disease at times the symptoms would be slight, at other times more pronounced, but never a fully developed symptom-complex.

In considering these masked forms one cannot consider them either as prodromal or secondary stages of a pure Basedow's disease, but they apparently form a distinct clinical picture with decided variations in many directions from the true disease, such as the absence of exophthalmic goitre, or its presence in a very small degree, the lack of a murmur in the gland, the irregularity of the gross tremors, the controllability of the attacks of heart symptoms, and the mixture of hysterical symptoms.

Stern pictures the psychical changes in pure Basedow's disease as a more or less euphoric mood that appears only in the height of the disease, while neither before the disease develops nor after it is cured are nervous or mental symptoms present.

In Basedowoid states, however, one meets with depressed states, with anxiety, irritability, and at the same time one observes before the onset of the symptoms of Basedow's disease, as well as after the disappearance of these symptoms, various nervous hysterical manifestations. The outcome of pure Basedow's disease differs materially from the other form. In the former about one-quarter of the cases end in death, in the majority of the cases, through heart failure. Nearly one-half recover, even after long duration. In the remaining quarter the symptoms remain unchanged or persist in mild degree. In the latter form, in contrast to the above-described outcome, the patients rarely recover entirely, but the symptoms persist in an isolated and incomplete character, disappear, only to reappear later. The death rate is only one-half as great as in the pure form.

Prognosis.—There is a wide discrepancy in the opinion of the various authors regarding the prognosis of exophthalmic goitre. The actual death rate is almost impossible to fix on account of the great variation in the severity of the symptoms.

Cases accompanied by marked mental symptoms apparently offer a graver prognosis than uncomplicated cases. Especially is this the case when profound delirium is present, and one is forced to believe that the occurrence of the severe mental symptoms has a direct relation to the severity of the disease process.

Kraepelin's figures for the pure type, that 25 per cent. end in death due to the disease itself, seems warranted. Also that 50 per cent.

recover fully, and the other 25 per cent. only partially recover also seems a fair estimate.

In the Basedowoid types which, as explained, are mild, the death rate is only one-half as great as in the pure types.

Relative recovery is frequent, in which the patients are able to carry on their usual activities, and are in about the same condition as patients with mild neurasthenia. With surgical treatment, especially in the early stages, the prognosis is much better, Mayo reporting recently 75 per cent. of recoveries in a series of 278 cases.

Without operation a large proportion of cases become chronic. Packard reports a striking feature in the rapidity with which death followed the onset of the symptoms in many cases. In these cases delirium and excitement were conspicuous.

Treatment.—While the seat of the disease undoubtedly lies in the thyroid gland, the influence of its increased and pathologically altered secretion is obviously generally felt, and the whole organism is in the same degree affected. Hence the various methods of treatment vary according to the stage and severity of the disease process, and treatment aimed at the thyroid gland contributes only a small part to the successful handling of the case.

Previously to the last few years pure medical treatment was the rule, but since Rehn first operated in 1884, treatment by surgical operation has made rapid and successful progress. But surgical treatment alone will not suffice, as the large mortality of the earlier cases stand.

NON-SURGICAL TREATMENT. — *Rest.* — Among the various methods (non-surgical) of treating the disease is rest. The most efficacious treatment consists largely of absolute rest, both mental and physical. Especially is this true of the most severe cases. Coupled with this, general and symptomatic treatment must be intelligently employed. The frequent tendency of the disease to improve under rest, especially when taken in hand early, is of the utmost importance. All mental excitement must be eliminated.

In the less severe cases a moderate amount of exercise and work can be permitted, but with strict limitations. The patients should never be allowed to become fatigued. The application of rest should be made to suit the individual case. With some patients it is impossible for them to rest by remaining the entire day in bed. Some variation is necessary, and often suitable occupation will be more beneficial than enforced idleness.

Treatment in a well-appointed hospital or sanatorium should be preferred to home treatment whenever possible, but in some cases it may be necessary to carry out the treatment at home. In some of the milder forms such systematic treatment as outlined may not be necessary, and the patients may be advised to continue their occupations for a certain number of hours each day, with frequent rest intervals on a couch, when it is impossible for them to spend all day in idleness.

SYMPTOMATIC TREATMENT.—The symptomatic treatment is of the utmost importance. Tachycardia and palpitation will usually subside

with sufficient rest. And it is best to wait before treating heart symptoms with drugs until rest has been tried. If rest alone does not reduce the pulse rate, a light ice-bag placed over the heart will be of benefit. It can be used constantly or at intervals according to the effect.

To obtain mental rest, rigid seclusion will be necessary in some cases, especially those showing psychic disturbances. Cheerful company of the right sort may be permitted, but under strict regulation. All exciting and depressing occupation should be avoided. While exhausting tours are extremely dangerous, leisurely travel is often permitted, but unless for climatic reasons the patients should not be allowed to go on journeys of any distance. Especially in the early treatment should such travel be forbidden. Climatic treatment is of little benefit except when a change of surroundings is desired. Then the seashore should be avoided as well as very high altitudes which affect the heart unfavorably.

The diet should be varied and sufficient to increase the bodily weight, but overfeeding should be avoided. Good digestible food should be taken, and all indigestible and stimulating foods and condiments excluded. Alcohol should not be used, and coffee and tea used only sparingly, if at all.

Plenty of fresh air is very necessary, and the patient can spend a large part of the time out of doors, either in a reclining chair, or, if possible, may sleep out of doors at night.

Cardiac stimulants may be necessary, and of these digitalis should only be used when there is pronounced cardiac weakness, and only under careful supervision. Dock prefers to give digitalis every other day or every third or fourth day, according to the conditions. In mild cases strophanthus (the tincture, 5 to 10 minims) may give better results than digitalis and is more easily tolerated. Strychnine is also useful in mild cases. Belladonna and atropine have been used to lessen the activity of the thyroid gland, but are of doubtful value.

Iodine and iodides have been used to advantage in some cases, but, on the whole, their value is limited and often produce serious symptoms. The injection of iodine or iodoform into the gland is more dangerous than a surgical operation, and should not be attempted. Electricity has been advocated by some writers, but it is of doubtful value. Weak currents may be applied, and in some cases much benefit has been reported. But according to Dock, the chief benefit is due to associated general measures or to suggestion from belief in a potent and mysterious means of cure.

The lytic serum devised by Beebe is as yet in an experimental stage. It promises well and should be considered in serious cases.

Nervousness, restlessness, and insomnia will usually respond to the rest treatment in mild cases, and are little influenced by drugs. Often a warm bath, 95° to 96°, may be employed with advantage. Occasionally bromides may be used at bedtime, preferably a dram of the sodium salt repeated in an hour, if necessary. Opiates should not be used. In the cases with severe psychical disturbances, such as delirium and

maniacal attacks, urgent treatment is necessary, and seldom can be carried out at home or in a general hospital, so that it may be of advantage to the patient to be treated in a hospital for mental diseases.

Prejudices against the "asylum" treatment for such cases were well founded, but much benefit can be derived and the patient's life saved by intelligent hospital treatment. These severe toxic conditions accompanying, and frequently the cause of, the psychic manifestations, often in women, prove fatal, aside from the exhausting effect of the latter symptoms.

In a recent article, Solis Cohen[1] has employed the non-surgical treatment of exophthalmic goitre. His main contentions are that the disease is not one of hyperthyroidism only, and that operation is unnecessary in the majority of cases. Surgery should be resorted to only in those cases where (1) the disorder has persisted for a long time, despite medical and hygienic management; (2) when the disorder is progressive and far advanced and threatens to become dangerous, even without sufficient medical treatment; (3) when rest and prolonged treatment are impracticable by reason of the patient's financial status.

The main feature of the treatment outlined by him is rest, which must be adapted to the symptoms of the individual case, and in individualization throughout the entire treatment; in hydrotherapy, diet, etc. The most important part of his method of treatment is that which relates to the use of preparations of the ductless glands. Two difficulties at once arise in such medication, (1) the choice of the particular agent most appropriate to the individual case; (2) the difficulty of procuring trustworthy preparations.

The most useful preparations of the ductless glands, according to him, is that of the *thymus gland.* It must be given in large enough doses 0.5 to 3 grams (8 to 45 grams) of a good desiccated gland. This can be given alternately with adrenal gland for the best results.

Recently, Solis Cohen has been using pituitary preparations with some success. The whole posterior lobe of the pituitary gland is easier to obtain and is preferable. The theory of the treatment of other ductless gland preparations is based upon the interrelation of the hormones and hormonogenic tissues. As the rationale of organotherapy is doubtless different in different cases, it is difficult to outline any definite or specific treatment. It is impossible to dogmatize concerning the natural complementations and antagonisms which can be made use of in organotherapy. Certain indications, however, are considered worthy of note.

The indications for the use of the pituitary preparations or of epinephrin are based upon the systolic blood pressure. When that is especially low, say, less than 100 mm. Hg., one of these substances should be administered, whether the thymus gland is given at the same time

[1] The Non-surgical Treatment of Exophthalmic Goitre, American Journal of the Medical Sciences, July, 1912, No. 484, vol. cxliv, No. 1.

or not. In some cases *thyroid* gland is extremely useful, and parathyroid gland extract may be useful in controlling tremor and other nervous symptoms. Such treatment as outlined by Solis Cohen, based upon the interrelation of the hormones, opens up a wide field, and further experimentation may produce valuable results.

SURGICAL TREATMENT.—By far the most important advances in the treatment of Graves' disease has been in surgery, and the most successful results have been obtained by surgical means.

The development and progress of the surgery of the thyroid has been in the hands of a very few surgeons. Kocher is known as the first master and teacher, but to C. W. Mayo, Crile, and Marine in this country we owe most of our modern knowledge of the disease and its surgical cure. The progress due to a better knowledge of the disease has been apparent only in the last twenty years, and this knowledge has resulted in a reduction of the mortality, a greater number of cures, or in a greatly lessened disability.

The surgeons agree that medical treatment should be given a fair trial before surgical interference is invoked, but that surgical treatment should not be too long delayed. Especially should surgical intervention come before the whole organism is poisoned through the hyperthyroidism. The favorable cases for operation are those in which the disease has not progressed too far, but even these apparently hopeless cases can at times be cured.

According to Plumer, the greatest degree of intoxication is reached after the latter half of the first year, then rapidly diminishes to the twelfth month. During the next six months it varies and may increase until a normal condition prevails, but often there are fluctuations and exacerbations for the next two or four years. In spite of the large mortality in the earlier operative cases, 20 to 30 per cent., the disease has gradually come to be considered surgical rather than medical.

At the present time the mortality varies from 1 to 4 per cent., and the cures, according to Mayo, about 75 per cent. This author reports a series of 278 consecutive operations without a death. He attributes this decrease in the mortality to the "factors of safety" in the treatment, preparation, and operation of the patients.

Contraindications.—The best results are obtained by avoiding an operation during an exacerbation of the acute symptoms, as the mortality is frequently high. The most important symptoms should be treated medically, and an effort made to tide over the condition until the exacerbation and symptoms subside.

During gastric crises and acute delirium, operation should be avoided.

Another condition which contraindicates operation is dilatation of the heart. Mayo claims that where the enlargement exceeds one and one-half inches, radical thyroidectomy will give a high mortality. The type of operation will vary greatly, and the individual case will have to decide which operation is preferable, and which will be the least dangerous. But no matter what operation is selected, the preparation of the patient for the operation is the most important point. The

PLATE XV

Fig. 1

German.

Fig. 2

Lithuanian.

Fig. 3

Italian (South).

Fig. 4

Italian (South).

Mau

milder forms will not present such difficulties as the more advanced cases. The principal risk is the acute exacerbation of the disease known as hyperthyroidism, which displays itself as tachycardia, high fever, restlessness, tremor, and finally delirium.

Crile has very ably studied this problem, and by his work has materially changed the opinions reached regarding postoperative phenomenon. Factors formerly considered as important in causing this phenomenon, such as hemorrhage, infection, manipulating and cutting the thyroid (with consequent absorption of thyroid secretion), have been entirely eliminated by him as important factors, and the anesthesia, operative trauma, and in particular the psychic disturbances accompanying operation given the first place of importance in the chain of fatal factors.

The psychic factors exert the most potent influence in operative cases. When one considers that one of the principal features of the disease is abnormal fear and apprehension, it is easily seen that the fear of the operation will in itself be an important fact which will cause the most disastrous results, especially as such a fear is present even in normal people undergoing operations. It has been found that operative trauma of the tissues of the thyroid as well as other tissues is also a very important factor in hyperthyroidism. In a series of 71 operations on various parts of the body other than the thyroid gland in persons affected with Graves' disease Crile found that the mortality was 15 per cent., whereas in patients not affected with Graves' disease the mortality should only have been 1 per cent.

Fear and trauma are very closely connected, and this may account for the extreme ill effects of these factors. The technique described by Crile is based upon the necessity for eliminating these factors. The patient's consent to an operation is obtained some time prior to admission to the hospital. During the first few days the case is carefully studied and a concerted effort made by the staff and nurses to instil hope and confidence into the patient.

Method for Thyroidectomy.—If excision is to be done, Crile adopts the following routine: "The patient's reaction to small doses of morphine and scopolamine is ascertained. Daily inhalations, which are presumably for some medicinal purpose, but which are precise rehearsals of ether anesthesia, are practised by the anesthetist, by choice a woman. Ether is tentatively dropped on the inhaler along with the volatile oils, and the patient is cautiously, without her knowledge, tried out as to ether anesthesia—sometimes is completely anesthetized—all this in her own bed. The results are then studied, and if the patient seems unsuited for the operation of excision, ligation is done as later described. If the central nervous system and heart take the practice march well, the entire operation is then performed as follows: Long previous consent to an operation having been obtained, the patient is given morphine and scopolamine on the appointed morning, is kept absolutely quiet, is then gently anesthetized to the second stage, in bed as before, and is at once taken to the operating-room, where nitrous oxide is substituted

for ether. The operative field is as completely cocainized as if no general anesthesia were being given. First the skin and fascia of the opposite side are incised about one inch. Through this incision, by means of a full curved needle, the upper pole of the gland (Stamm) and all of the overlying tissue inclusive are firmly ligated. Then in the gentlest possible manner the opposite lobe is excised bloodlessly, absolutely avoiding traction on any uncocainized sensitive tissue—precisely as if the patient were awake. After the operation the utmost care is exercised to keep psychic and painful stimuli down to a minimum." If simple ligation is to be done, another procedure is adopted as follows:

"After the patient is easy and comfortable under morphine and scopolamine, and not before, she is told what she will probably experience. Everything being in readiness—skin, fascia, and muscles—a transverse distance of an inch overlying the upper poles of each thyroid is carefully cocainized. An incision is then made through the skin and fascia, a full curved needle is swept from without inward in such a manner as to include the upper pole of the thyroid, as well as all other structures lying between the bottom of the incision and the larynx. This ligature is then tied and a superficial stitch or two closes the skin. A similar procedure repeated on the opposite side completes the double ligation. It is helpful to chat with the patient meanwhile. The operation is performed on the patient in bed."

The procedure of the local anesthesia in breaking the nerve connection between the brain and seat of operation is considered by Crile to be of the utmost importance, and has a direct bearing on the subsequent progress of the case. The question of the form of operation, *i. e.*, whether ligation or excision, depends largely upon the type and severity of the disease. Patients in the early stages are sometimes wonderfully improved by double ligation. These cases, however, are few in number and, according to Mayo, may belong to the type which may possibly abort. It was difficult to say that the improvement in all cases was due entirely to the operation.

Serious cases are treated by single ligation of the vessels at the left upper pole, and, according to Crile, some of the pole of the gland should be included so as to embrace the nerve supply as well as the blood supply. The reaction to a single ligation is about three-fourths as severe as to a double ligation, but this one-quarter is an element of safety. (Mayo.) If the reaction is very severe, a second ligation of the upper right pole is made a week later. If the reaction is not severe, at the second operation the right lobe, isthmus, and a portion of the left lobe are removed. In some cases of extreme emaciation, but with a temporary improved condition, a double ligation is made at one operation. The weight increases rapidly, and often within a few months a thyroidectomy of one-half or three-fourths of the gland can be made with small risk.

The direct effect of the operation when carried out under the foregoing conditions is marvellous. The effect of the ligation, according to Crile, is due mainly to the fact of its breaking a part of the nerve connection with the brain, as well as cutting off the blood supply to

the gland. While the effects of excision is the diminution of the total quantity of the gland secreting structure and the breaking of the nerve supply as well.

Following the operation, a prolonged rest cure should be insisted upon if the best results are to be obtained. It is only by this method that proper repair can come to the damaged brain cells, and when such a rest is taken most of the patients are cured. So that a combination of surgery and rest cure is the method of choice and will cure most of the patients, even those in the most critical condition.

HYPOTHYROIDISM, ATHYROIDISM—MYXEDEMA AND CRETINISM

The coincidence of cretinism and myxedema has been known since the time of Paracelsus (1616). Grell in 1873 first described the mental symptoms accompanying myxedema, and soon after the treatment of these conditions was put on a rational basis unequalled in any other disease.

Types.—The results of hypothyroidism are of four principal types:

1. Congenital myxedema (congenital cretinism).
2. Infantile myxedema (endemic and sporadic cretinism).
3. Spontaneous myxedema of adults.
4. Postoperative myxedema.
   (*a*) From total extirpation of the gland.
   (*b*) From almost complete extirpation.
   (*c*) From atrophy of the gland after operation.

The type with which neurologists and psychiatrists have the most concern is the spontaneous myxedema of adults, and in no realm of medicine is the treatment so sure and specific as in this disease.

Symptoms.—The condition is characterized by a rapidly progressive inhibition and retarding of all the psychic functions, accompanied by characteristic change in the skin and distinct nervous symptoms. The disease, as a rule, develops slowly. The patients exhibit a gradually increasing inability and difficulty in perception and elaboration of external impressions. They are able only with the greatest difficulty to follow conversation, and misunderstand much that is said to them. Reading with understanding is accomplished only by constantly repeated scanning of the text, sentence by sentence. They become easily fatigued; soon the simplest mental work causes them an unusual effort, and after such an effort they are totally unable to collect their thoughts. The psychical processes are all retarded. The memory is very much affected, and the patients are unable to recall events and facts of the most recent occurrence. Anything of importance must be written down if they desire to remember it. The consciousness, although clouded at times, is usually but little affected, and the orientation is clear. By reason of these mental symptoms the patients soon become unable to perform their usual occupations. They lose a correct appreciation of their surroundings, and take an unusually long time to do the

simplest acts, such as writing a letter, dressing and undressing. This mental inertia and apathy become so pronounced that the patients are at length unable to perform the simplest duties and become absolutely helpless. In the early stages of the disease the patients have some insight into their apathy, and are much affected by it. They appreciate that they cannot perform their usual duties. As the disease progresses they become more stupid, and hence indifferent to their condition. They do not worry over their state, take no interest in their family and friends, and show neither joy nor sorrow over events of their life or surroundings. They soon become absolutely demented, and present a picture similar to patients suffering from the dementia of other conditions.

This disease is essentially a disease of adult life; the arbitrary line of division between myxedema and cretinism being fifteen years. In age incidence there is an increase up to forty-five years and then a decrease. The average of greatest age incidence in women is thirty-eight years and in men forty-two. Over half the cases in women occur between the ages of forty and forty-five. Women are more often affected in the proportion of seven to one.

Kraepelin speaks of the milder forms, and Pilcz makes a distinction between certain mental conditions in myxedema, such as slowness, apathy, drowsiness, forgetfulness, and true myxedematous insanity, *i. e.*, with marked psychoses.

There is undoubtedly some mental disturbance in every case of myxedema, although in some cases these symptoms are very mild. In one-third of the cases, however, we get the picture of simple dementia accompanied by a series of very marked mental symptoms. The patients are apprehensive, more or less depressed, worried, show self-accusation and fears, and have thoughts of suicide or suicidal impulses. At times is noted sleeplessness, marked restlessness and excitement, disconnected productions, senseless resistance, and refusal of food. Occasionally confused states are present, with hallucinations and well-defined delusions of persecution.

PHYSICAL SIGNS.—The physical signs of this disease are very prominent, and can be called characteristic. The most marked sign is the change in the skin. It becomes swollen, thick, and dry, and because of the tendency of the epithelium to scale off in large flakes, looks denuded and raw. The subcutaneous tissue is swollen but not edematous in the usual acceptance of that term. The swelling appears first and most marked in the face, then in the extremities, beginning usually in the lower and extending to the upper limbs. The face looks swollen, broad, pale, and full. Swelling develops around the chin and eyelids, the nose is thick and clumsy, and the face has a heavy expression. The tongue is thick and swollen, and speech is often difficult. The swelling appears on the neck and extremities. The hands become swollen out of shape and resemble mole paws. The skin is pale and cold, feels firm and elastic, but does not pit, as there is no true edema present.

The sweat secretions cease. The hair and nails become thick, dry,

PLATE XVI

Fig. 1

Exophthalmic Goitre, showing Marked Exophthalmos and Enlarged Thyroid.

Fig. 2

Same Patient Four Months after Operation (Extirpation). Greatly Diminished Exophthalmos and Change of Facial Expression.

(Courtesy of Dr. George W. Crile.)

Mau

and fall out. At certain spots, *e. g.*, above the clavicles, neck, etc., tumor-like infiltrations of the skin may appear, and often infiltration of the mucous membranes, *e. g.*, of the mouth and gums, with loss of teeth, is observed. The patient's whole appearance is awkward and ungainly, and this impression is increased, on the one hand, by muscular weakness, and on the other hand, by the diminution of intelligence and mental dulness. Slowness of thought, movement, and speech, and an awkward waddling gait are characteristic symptoms. The hearing is impaired, and other special senses may also be dull. The temperature of the body is usually subnormal, and the patient generally complains of feeling cold. Headache, vertigo, and a feeling of weakness are marked subjective symptoms.

Anesthesia is often present. The deep reflexes are often normal, as is also the electrical excitability of the nerves and muscles. Increased electrical resistance of the skin has been observed. The voice is rough, hoarse, and monotonous. There is sometimes a marked tendency toward hemorrhage from the nose, gums, or in the skin. There is an increase in the circumference of the whole body, the swollen, broad, expressionless face which gives a general resemblance to all cases, the monotonous rough voice, the thick hands and feet, the slowness of thought and movement, and the general physical weakness, make it comparatively easy to diagnosticate the disease. It is necessary to differentiate the condition from edema, especially the persistent edema following chronic erysipelas, or from syphilitic edema. Similar changes to the skin have been observed in dementia præcox, but it is very rare. The condition known as familial trophic edema is not difficult to differentiate from myxedema.

Next to the affection of the skin and subcutaneous tissue we have the disease of the thyroid gland. This organ is usually diminished in size or atrophied, and these changes are constant. Experimental and clinical observations show that the disease is caused by a loss of the thyroid gland or its functions, and the result of modern treatment is a striking proof of the correctness of this view.

Postoperative Myxedema. — The removal of the thyroid gland produces a condition known as postoperative myxedema, and this condition may be slight or grave, according to the amount of gland removed. Kocher and Reverdin designate the condition produced by total extirpation as "cachexia strumipriva." The patient complains of fatigue, pain, and heaviness of limbs, a feeling of cold, etc., symptoms which are followed after days, weeks, or months, or sometimes after a longer interval, by transient swelling in face, hands, and feet. This swelling and puffiness, which present all the features described above as characteristic of myxedema, gradually become chronic. The thoughts, speech, and movements then gradually become slower and slower. The skin is pale, cold, dry, and degenerated, the hair falls out, and the bones are backward in their development. The patient becomes more and more feeble, and if he is not to be treated in the way to be described, he generally succumbs to the disease.

It is a very important fact that the disease does not develop if only a small part of the gland is removed, unless there is atrophy of the gland following operation.

Course.—The course of the disease is progressive when no specific treatment is given. The patients become more demented, with marked changes in their physical condition. The extreme emaciation takes the place of the apparent excessive fatty condition; they become weak, show severe intestinal and digestive disturbances and collapse. Usually death is caused by some intercurrent disease, which cannot be withstood because of the lack of resistance of the weak bodily condition.

Mild types of myxedema may remain stationary, or even without treatment the symptoms may gradually disappear. The cause of the disease is, without doubt, due to the lack of function of the thyroid gland. This gland probably secretes a substance which has an autotoxic effect upon the toxic products of metabolism. If these products are not destroyed they give rise to changes in the organism which are characteristic of myxedema. The deleterious products affect particularly the central nervous system.

In men as well as animals of the carnivorous type, when the thyroid gland is removed, the symptoms are characteristic, and the opinion today is that this condition is not only caused by the absence of the gland, but by the absence of certain epithelial bodies which are in the gland. Blumer found that in dogs fed entirely on milk, the danger of removing the thyroid gland was much lessened. He claimed that the toxin which was uncontrolled by the loss of thyroid function came from the elements of albumin decomposition.

The secretions of the thyroid are, without doubt, necessary to life, and play an important part in the metabolism of the body. Of extreme interest is the fact (although at present not at all clear) of the relation of myxedema to sex. More than three-fourths of the cases are in women, usually in middle age, or in the involution period. Occasionally we see the condition disappear or much improved by pregnancy. These facts are in harmony with the general experiences that the activity of the thyroid gland is in some way connected with the sexual life in women. We know that enlargement of the thyroid gland is much more frequent in women than in men, and that this organ frequently is enlarged during the menses. The most favorable time for the development of myxedema in general is during infancy and childhood, but because of the close relation of the two this type will be considered under cretinism.

Treatment.—The treatment of myxedema, thanks to our knowledge of the nature and cause of the disease, is very simple and certain. Schiff was the first to show, by his experiments on animals, that removal of the thyroid gland did not produce the usual results if the thyroid of an animal of an allied species was implanted in the abdominal cavity in such a way that it remained capable of function. Bircher, in 1899, found the same results, and he with Lannelongue, Horsley, and others have built up the modern treatment of myxedema. At first thyroid tissue from anthropoid apes, sheep, calves, etc., was used, and

subsequently an extract of thyroid gland was injected subcutaneously, and finally the thyroid tissue, or an extract prepared from it, was given internally.

The effect of the treatment of the disease by the preparations of the thyroid gland is more marked and certain than any other known treatment in medicine, and this is because of the fact that it is really not a drug treatment, but merely supplies to the tissues the elements which they lack through the loss of thyroid secretion.

Thyroidin is an extract of the thyroid containing organic iodine, and has been used with success, but is not as efficient as the extract of the whole organ. Tabloids of the dried gland, made by a reputable manufacturing chemist, should be used. Great care should be taken to avoid decomposed preparations or those which are inactive. Many failures and a number of very serious results have been reported from the use of tissue that is decomposed or not properly prepared. The method of administering the extract is of the utmost importance. Small doses are given at first, and are then gradually increased, or stopped for a few days at a time and then resumed.

If too much is given at first very pronounced symptoms of thyroid poisoning will follow, such as headache, tachycardia, vertigo, severe or dangerous heart weakness, and even death due to collapse. The effect of the treatment of thyroid extract begins about the third or fourth day after its administration, and from then on with astonishing rapidity. It is eliminated through the intestine and kidneys. Albumin and urea increase in the urine. The body weight diminishes rapidly. The skin shrinks, and the peculiar edema disappears rapidly. The nose loses its thickened aspect, the tongue moves more easily and decreases in size, the joints become more flexible; the stomach symptoms disappear; the skin becomes moist and soft, and the patient perspires freely. The pulse beats increase in frequency, and the body temperature is raised. The veins become more distinct. The number of red and white corpuscles in the blood increases. At the same time there is a marked improvement in the mental symptoms. The apparent dementia clears up, and the patients become lively, interested, and talkative.

In most cases the mental symptoms disappear within a short time, but a certain degree of fatigue persists somewhat longer. The dose at first should be small. Two or more two and one-half to five-grain tablets may be given two or three times a day, and the dose can be increased, according to the needs and symptoms, up to five tablets a day. With the appearance of any symptoms of hyperthyroidism the tablets should be discontinued for several days or until the symptoms subside. During the treatment the patient should be kept mainly on a vegetable diet. Some authors maintain that the dangers incident to thyroid treatment may be diminished by the simultaneous administration of arsenic. As a rule the result is not achieved by a single course of treatment, as its interruption is followed by relapse, which requires it to be once more resumed.

Cretinism.—Cretinism is a combination of an early arrest of mental development and the physical signs of a stunted or degenerated thyroid gland, particularly the myxedematous skin changes, and an abnormal skeleton, due to the lack of development of the bones. Cretinism may be considered an incomplete myxedema. The abnormal skeleton is due to the retarded growth of the bones, the result of disturbances in nutrition rather than any specific interference of bone formation.

Symptoms.—The character of the bony changes depends upon the period of growth at which the disease begins. The earlier the thyroid changes the more marked the alterations of the bones. Bone development may continue beyond the usual period.

The skull is remarkable for its low forehead, deep and broad root of the nose, prominent molars, and prognathism. It may be large or small; broad or narrow. The sphenoöccipital fissure is not closed prematurely, but has been found by various observers to be open after fourteen months, twenty-four years, or cartilaginous at fifty-eight years.

The bones of the extremities, as also the ribs, are short and thick and sometimes deformed. Histologically, cretinous bones are characterized only by a lack of ossification.

Thyroid Changes.—In the majority of cases of cretinism there are goitres of various kinds. Sometimes the thyroid gland is absent, sometimes small to normal in size, but never normal in structure. Microscopically, there is an extreme atrophy of the epithelium, with thickening of the colloid.

Cretins are not smaller than other infants at birth, but are usually not more than forty to sixty inches when full grown. The short, broad body; low, broad forehead; flat nose, with conspicuous nostrils; small, widely separated eyes, together with the stolid expression and muddy skin, suggest the Esquimo. But in the more severe cases, the thick or blubbering lips, open mouth, with large protruding tongue, add a semibestial aspect, repulsive in the extreme. The neck is short and thick, the thorax short and shallow, and in females, lacking in mammary development. The abdomen is large and pendulous. The legs short and crooked, with small, weak muscles. The skin is chalky in color, sometimes varied by brownish pigment, and is thick, inelastic, and cold; it looks edematous, but does not pit on pressure. On the forehead the skin is wrinkled, and on the buttocks and genitals is often in folds.

The supraclavicular fossæ contain cushions as in myxedema. The submucosa of the mouth and pharynx is also sometimes thickened. The skin is usually dry and scaly, sweating is scant or absent. The hair is thin, coarse, and dry, and scanty on the body. The nails are brittle, the teeth carious. The genitals remain undeveloped, as a rule, sometimes developing only between the thirtieth and fiftieth years, but rarely to a stage making procreation possible. The body temperature is low, the gait is weak, waddling, or uncertain, sometimes limited to creeping.

Occasionally convulsions have been observed, seldom the facialis

PLATE XVII

Cretinism.

Woman, aged thirty-four years; mentally, seven years by Binet-Simon test; height, 49½ inches; protuberant abdomen, typical facies, supraclavicular pads of fat. (Original observation.)

Not for loan

phenomenon, and in a few cases tetany. The pulse is slow, and the circulation sluggish. The number of red and white corpuscles are decreased in number, especially the former, and the hemoglobin is much diminished.

The vitality of the cretins is very much lessened, and they present very little resistance to intercurrent diseases, so that usually they do not live to a very old age, only seldom reaching fifty years.

The cretinoid symptoms show much variation in intensity and severity, so that many degrees of the disease have been observed. Some of the symptoms will be more pronounced in one case than another. This is especially true of the mental disturbances. The cretins show all grades of mental defectiveness, from the lowest grades of idiocy to the lightest forms of mental weakness. In certain cases, in spite of marked physical symptoms of cretinism, there is nothing abnormal detectable. The great variety in the mental types has caused some authors to designate as "*half cretins*" those in whom the mental symptoms are only slightly developed, and the lightest forms with predominant physical changes as designated as "cretinoid."

MENTAL SYMPTOMS.—The mental symptoms in the majority of cases are those of a pronounced dulness and indifference, so that it is impossible for them to take in external impressions, to collect their experiences, or to have ideas about their environment. They remain frequently at about the level of the four- or five-year-old child. Often they belong to a lower level, and have been designated as "beast men" and "plant men," according to the degree of mental deficiency.

The emotional excitability of the cretin is very slight; they are indifferent, phlegmatic, childish in their actions, good humored, and easily influenced. They are unable to engage in any profitable occupation, partly because of their slowness and dulness and sleepiness, and partly because of their lack of strength and great tendency to fatigue.

In isolated cases there develops in cretinism, as in other cases of idiocy, transitory mental disturbances, such as excitement and depression or fleeting delusions. Occasionally one observes a fully developed psychosis, such as manic-depressive psychosis and others.

Cretinism undergoes many changes in the course of the life of the patient, as has been shown by Perusini and Cerletti.

The myxedema appears to be more pronounced in childhood, in the third to fourth decade, in women somewhat later, the swelling of the skin gradually diminishes, the skin becomes smooth, dry, or wrinkled, and in folds. In the face the residuals of the myxedema are noticed for years, by a round "full moon" type, with protruding lips, puffing of the eyelids, sunken eyes, and a dirty gray color of the skin. The cretinoid expression is more pronounced when the patient laughs.

In other ways the growth of the patient may influence the symptoms. The body is somewhat taller, the sexual development may take place, even when the patient is past middle life, and the patients may attain some degree of mental activity, and to a more or less degree may be able to support themselves by some suitable, simple occupation.

ENDEMIC CRETINISM.—The greater proportion of known cretins belong to the so-called endemic form that apparently is found in the mountainous regions all over the world, especially the regions where goitre is prevalent. The largest proportion of cretinism to the population is found in the Alps, where 26.5 persons to the one thousand population have goitres, and four to one thousand are cretins.

The exact cause of the endemic form of cretinism is not known, but many factors are supposed to have a causal relation to the disease, such as a great amount of moisture in the air, stagnation of the atmosphere, impure drinking water, character of the air and earth's surface in certain regions, geological formation, and unfavorable hygienic conditions. Where people migrate from a non-goitrous district to one where goitre is common the goitre often shows in the first generation and cretinism in the second generation. In such regions cretins have goitrous mothers. In some cases it would seem as if congenital cretinism were derived from the mother, that occurring later from the father.

It is possible that cretinism is inherited, and the symptoms may develop often in the children after a family has moved away from a goitrous neighborhood. It has also been observed that marriage into families which are free from goitre and cretinism tends to eliminate the disease. But the most important factor is possibly the drinking water.

It is possible that there is some organic or infectious agent that may be the cause of the disease. Without doubt the disease of the thyroid gland is responsible for the condition. Cretinism can occur with or without goitre, for the disease process is able to cause enlargement and degeneration as well as atrophy of the thyroid gland.

SPORADIC CRETINISM.—Besides the endemic form common in regions where goitre and other thyroid diseases are prevalent, we have the sporadic form, which form, although similar in character to the endemic form, still, in some respects, differs from the latter, especially in the etiology. Both are due to the lack of thyroid secretion. The causes of the sporadic form are far better known than those of the endemic form.

Thyroiditis, from or in an infectious disease, such as measles, enteritis, typhoid fever, or trauma, is probably one of the most important causes. Tuberculosis, bad hygienic surroundings, alcoholism, and emotional shock in the patients have been mentioned as probable causes of this form.

The sporadic form is frequently congenital, but the symptoms are not apparent until the second year. This is usually attributed to the protective action of the mother's thyroid secretion in the milk, or to the exclusive milk diet. After weaning both these influences are lost. As there is little or no bone formation, these cases are usually dwarfs. The fontanelles remain open, but no evidences of rickets are present. The muscles are small and weak, the abdomen large and pendulous, and, as a rule, umbilical hernia is present. The skin and

mucous membranes are thick, the former either from fat or from the myxedematous infiltration. The hair is coarse and grows poorly. There is anemia with leukopenia. The thyroid is usually atrophied. The bony skeleton acquires the usual cretinous characteristics. Mental and physical development are at a standstill.

Sporadic cretinism varies in its features, according to the stage of development at which the loss of the thyroid function occurs. If it occurs after the first year the fontanelles are closed. The degree of ossification and the length of the body are in proportion to the age at which the disease began. Besides the stunted growth the parts of the body do not show normal proportions. The head drops forward, the upper vertebræ are curved, with the convexity backward, the lumbar spine often having an opposite curve increasing the protuberance of the abdomen. Also the other symptoms of the endemic form are present to a more or less degree.

In spite of the common basis for both forms there are certain characteristics which differentiate the sporadic from the endemic form. The sporadic form is produced only when the functions of the thyroid gland are entirely absent (*athyroidism*), while in the latter form only a partial destruction of the thyroid gland may be present, a condition of *hypothyroidism*. And the course and character of the disease is in harmony with this fact. In the sporadic form the symptoms are more pronounced. The degree of stunted growth, the myxedematous symptom and the arrest of mental development without treatment will remain about the same throughout the patient's life. While in endemic forms we observe not only all grades of the disease, but at times distinct improvement takes place as the patient becomes older.

We must also admit that in the sporadic forms various grades of the disease may be observed. The etiological factors are somewhat different in the two forms.

Diagnosis.—The diagnosis is not difficult, especially if the disease is known to the physician. Even from reading and a study of photographs one should be able to recognize the disease in typical cases. The mental condition, aside from the physical symptoms of the disease, is not characteristic enough to make a diagnosis, but the arrest of growth and the myxedema must also be taken into account. Dwarfism may be a symptom of micromelia or rickets. But these cases show no form of myxedema. Mongolian idiocy, achondroplasia, congenital adiposity, diffuse scleroderma of the newborn, and hydrocephalus may be confused with cretinism.

The combination of idiocy and infantile dwarfism is difficult to distinguish from myxedema, but can be recognized by the absence of skin changes and of the cretinoid facies, the occurrence of sweating, and the difference in the bones. In all stages the difference between the swollen epiphyses and the irregular epiphyseal boundaries of rickets and the lack of ossification of myxedema are easy to demonstrate by skiagrams.

In micromelia the most striking feature is the shortening of the

extremities, much more marked than in cretinism and the body suffers no change, and there are no symptoms of mental deficiency.

In all suspected cases the size and condition of the thyroid gland should be investigated. In doubtful cases a careful trial of a thyroid preparation should be made. Slight improvement may occur in other conditions under thyroid treatment, but they cannot be compared to the specific changes in myxedema.

Sometimes adiposity may be mistaken for cretinism, but in the former there is an absence of bone anomalies and the characteristic facial expression of the cretin, and besides, the distribution of the mass of fat in the connective tissue under the skin is quite different. The deposit of fat on the back of hands and feet, the marked involvement of the face, tumor-like arrangement of the myxedema are points of diagnostic value. Very marked difficulties in diagnosis occur in old cretins, because of the fact that in these old cases the symptoms of myxedema, to some degree, also disappear, and thereby a characteristic of the disease is absent.

But Cerletti and Perusini have shown that there are always some residuals of a former myxedema in these old cases, such as wrinkles and folds in the skin, very marked fulness and rounding of the cheeks, and peculiar slaty color of the skin.

Treatment.—From our knowledge of the etiology of cretinism, both the prevention and treatment should be a comparatively simple matter.

PROPHYLAXIS.—The prophylaxis of the endemic form is like that of endemic goitre, a serious problem. Improvement of hygienic surroundings and pure drinking water are essential factors in the elimination of this disease. When such measures are enforced the disease disappears with surprising rapidity. The improvement in hygienic conditions is directly favorable, as it enables the body to better withstand the factors which cause the disease.

By reason of the hereditary factors of the disease it is advisable for such families affected to marry into families without the taint.

In Germany, Kraepelin ascribes the decrease in the number of cretins to the general improvement in the health of the race.

In individual cases prophylaxis is secured by sending the children as early as possible away from the unfavorable region, and have them remain away until the dangerous age is passed. Experienced observers declare that this method will often effect cures even after the first symptoms of the disease have developed. It is advisable to give small doses of potassium iodide for long periods during the early stages.

The treatment of individual cases of endemic cretinism is practically the same as for the sporadic forms. The improvement will depend chiefly upon the age, but even at an age when the growth has ceased, some improvement is possible. Growth and nutrition, including that of the skin, and also the intelligence improve under thyroid medication, which must be kept up for years, probably for life.

ADMINISTRATION OF THYROID EXTRACT.—The methods of administering the thyroid extract is by liquid extracts or dried powder or

tablets of the sheep's gland. The official preparations are: Liquor Thyroidei, B. P., freshly prepared, 100 minims representing one gland, and dose 5 to 15 minims. Glandulæ thyroideæ sicca, U. S. P., one part equals five of fresh glands, dose 1 to 5 grains (1 to 15 gr.). Even when the gland is carefully selected, the preparations are not always standard, and care must be taken to suit the dose to the individual case. The usual dose at first is 1 grain of the powder, once or even three times a day, according to the indications or results. The latter are less marked in proportion to the duration of the disease. The effects appear usually within a few days, at times later. Loss of weight is one of the first signs, then a more natural condition of the skin, the return of secretion in the sweat and sebaceous glands. Cyanosis disappears, the pulse becomes natural, the movements more active. The body extremities grow rapidly, the edema and thickness of the skin disappear. The ossification of the bones takes place rapidly. The tongue becomes smaller, the hair and teeth grow. The muscles become stronger, and the umbilical hernia disappears. The tendency toward constipation lessens, and the amount of urine secreted increases. The patients sleep better, become more attentive to their surroundings, lose their apathy and indifference, and finally lose all trace of their apparent dementia.

The mental improvement is most marked in younger patients, especially those under ten years. Some children rapidly catch up with others of the same age in their studies; others remain idiotic. In older patients the treatment has very little effect. This is especially true regarding the mental condition. In some of the grave cases the thyroid treatment will cause undoubted improvement in the symptoms of myxedema, and the menses may return, but without any change in the mental condition. Wagner reports much improvement in cases as old as twenty years, but usually in such cases the physical symptoms were more pronounced, and consequently the improvement included principally these symptoms. Other authors (Scholz, Siegert) have reported dangerous and severe symptoms from the use of thyroid, such as sudden decrease in weight, marked sweating, diarrhea, epileptic convulsions, tachycardia, increasing apathy. These symptoms usually occur if the dose of thyroid extract is too large, and great care must be taken to observe unfavorable symptoms, and when they occur to stop the treatment for a time and begin with smaller doses. Death has been known to occur from ordinary doses. When the dose has reached a maximum (about 25 grains a day) it should be lessened or stopped altogether for a while until a fairly accurate dosage has been discovered. The most brilliant results have been obtained in the infantile type, without endemic degeneration, and where the main trouble is with the disease of the thyroid proper.

Alt recommends in such cases a preliminary treatment directed against the disturbances of nutrition and constipation, and mainly dietetic in nature. On the assumption of a possible syphilitic basis for the disease he recommends small doses of potassium iodide, and

at first every other day, then every day, five grains of thyroidin. The treatment should continue for a long time, even for several years, if a complete cure is to be accomplished. After the treatment is discontinued, on the appearance of toxic symptoms, it should be renewed for a time. And it must be emphasized that the occurrence of such symptoms as heart failure, tremors, feeling of great weakness, restlessness, lowering of temperature of the body are indications that the treatment should be immediately discontinued.

PITUITARY BODY DISORDERS

Dyspituitarism, Hyperpituitarism, and Hypopituitarism. — Our knowledge of the functions of the ductless glands and the relations of internal secretions of such gland to certain definite disorders is of comparatively recent origin. The studies upon other glands of internal secretion (thyroid adrenals) have been much further advanced than those pertaining to the pituitary body. The relation of lesions of this apparently unimportant structure to diseased conditions would have probably been unknown but for the pressure of neighborhood symptoms caused by tumor of the gland. From these symptoms Marie and Marinesco (1889) were able to attribute acromegaly to such a tumor, and later Babinski (1900) and Fröhlich (1901) attributed adiposity and sexual infantilism to disorders of the same neglected gland. The recognition of an important principle underlying the whole subject of the ductless glands, *i. e.*, that lesions of one gland affect the structure and function of others, is due to Rogowitsch.[1]

We owe also a great debt to Cushing and his associates, who since 1906 have by animal experiments, surgical proceedings, and organotherapy materially helped to unravel the mystery connected with the pituitary body, and who have today placed the treatment of such conditions upon a rational basis.

Cushing's book, *The Pituitary Body and its Disorders*, is a revelation of the results which can be accomplished by systematic research, through a combination of laboratory and clinical experiences. Most noteworthy were the experiments upon animals, through which much was learned both as to the nature of the disease and its treatment.

This chapter is based largely upon a review of Cushing's book, and grateful acknowledgment is hereby tendered.

Classification.—The disorders of the glands are grouped under the general term of dyspituitarism, under which are recognized two conditions analogous to the disorders of the thyroid gland.

Hyperpituitarism, or overactivity of the gland and excessive secretion, and hypopituitarism, or underactivity and lessened secretion. But these simple divisions may be misleading clinically, for conditions

[1] Rogowitsch, N., Die Veränderungen der Hypophyse nach Entfernung der Schilddruse. Beit. z. Path. Ant. u. z. allg. Path., 1889, iv, 499–501.

PLATE XVIII

Case of Pre-adolescent Hyperpituitarism, with Giant Overgrowth. Enlarged Sella Turcica.

Weight, 275 pounds. Height, 8 feet, 3 inches. Note the narrow chest, enlarged joints, hypertrichosis, and large size of hands. (From Cushing's Pituitary Body.)

which at the outset may be due to an overactivity, later become blended with conditions characteristic of insufficient function of the gland. An analogous condition is found in disorders of the thyroid gland, where symptoms of oversecretion may be superseded by symptoms of insufficiency, or where symptoms of goitre may be overlapped by those characteristic of myxedema. Hence, it may be difficult to tell what symptoms predominate, and the term dyspituitarism would more truthfully describe the disorder.

Cushing divides the disorders into five groups, such division being based upon an analysis of his series of cases, as follows:

Group I. Cases of dyspituitarism in which the signs not only indicate distortion of neighboring structures but the symptoms betraying the effects of altered glandular activity are also outspoken.

Group II. Cases in which the neighborhood manifestations are pronounced but the glandular symptoms are absent or inconspicuous.

Group III. Cases in which neighborhood manifestations are absent or inconspicuous, though glandular symptoms are pronounced and unmistakable.

Group IV. Cases in which obvious distant cerebral lesions are accompanied by symptomatic indications of secondary pituitary involvement.

Group V. Cases with a polyglandular syndrome in which the functional disturbances on the part of the hypophysis are merely one and not a predominant feature of a general involvement of the ductless glands.

Under the first four groups there are three subdivisions.

(1) Cases in which the clinical manifestations of past or existing *hyperpituitarism* predominate, resulting in *gigantism* when the process antedates ossification of the epiphyses, and resulting in *acromegaly* when it is of later occurrence.

(2) Those in which the clinical manifestations of *hypopituitarism* predominate, and when the process originates in childhood, adiposity, with a persistence of both skeletal and sexual infantilism, and when it originates in the adult, adiposity with sexual infantilism of the reversive form.

(3) Mixed or transition cases exhibiting some features of both states, with evident *dyspituitarism.*

Cushing admits that there are evident faults in such a provisional classification, but it is undoubtedly the best that can be made from our present knowledge of the functions of the gland and its relation to the clinical manifestations.

Cushing points out one fault in his classification, *i. e.*, that it does not take into consideration the dualistic character of the gland, for there may occur either an overactivity or underactivity of both the anterior and posterior lobes, or of either one alone.

The *pars anterior,* so far as known at present, not only seems to be more closely correlated with the other ductless glands, but presides more intimately over skeletal growth, whereas, the posterior lobe

has been shown to be more closely allied to the processes of tissue metabolism (an insufficiency causing marked deposition of fat), and to the activity of the renal and vascular systems. Hence, the possibility of combinations of inactivity of the posterior lobe with overactivity of the anterior lobe, a combination of overactivity of the posterior lobe with anterior lobe deficiency, and finally a combination of overactivity of both lobes, or a deficiency of both lobes.

But Cushing states that it would be unsafe in many instances to attribute certain syndromes to the individual participation of the lobes, as our present knowledge does not warrant such conclusions. Whether these various disturbances of the functions of the gland occur before or after adolescence will have an important bearing upon the clinical picture.

It is worthy of note that formerly the coexistence of a tumor of the pituitary region, whether of the gland or not, was considered the most important factor in producing acromegaly, and that without the occurrence of such tumor it is doubtful whether the pituitary would occupy its present important role. Marie and Marinesco attributed the changes in a case of acromegaly with tumor of the pituitary to glandular insufficiency, and for years experiments were carried on with the idea of producing acromegaly by extirpation of the gland.

Partial Extirpation of Gland.—Not until 1908 to 1909, in the Hunterian Laboratory of the Johns Hopkins Medical School, was the fact discovered by Cushing and his coworkers, that partial extirpation of the gland in animals who survived for a long period of time produced a picture the reverse of acromegaly. Later observations proved that not only was it possible to have acromegaly without tumor of the gland, but that tumor of the gland did not always produce acromegaly. From these observations, and the conclusive work of Cushing, the pituitary tumor has been relegated to a secondary position in the etiology of pituitary diseases and its prominent role has been confiscated by other changes mentioned above. Clinical states of *increased functional* activity have been shown, with few exceptions, to be associated with hyperplastic or edematous processes, and these in turn to be directly concerned in producing acromegaly.

If this hyperplasia, which is supposed to cause acromegaly, has occurred even though the hyperplastic gland later may have undergone complete involution, and finally come to show no scars or microscopic alterations, the local bony changes nevertheless always remain as evidence of the process.

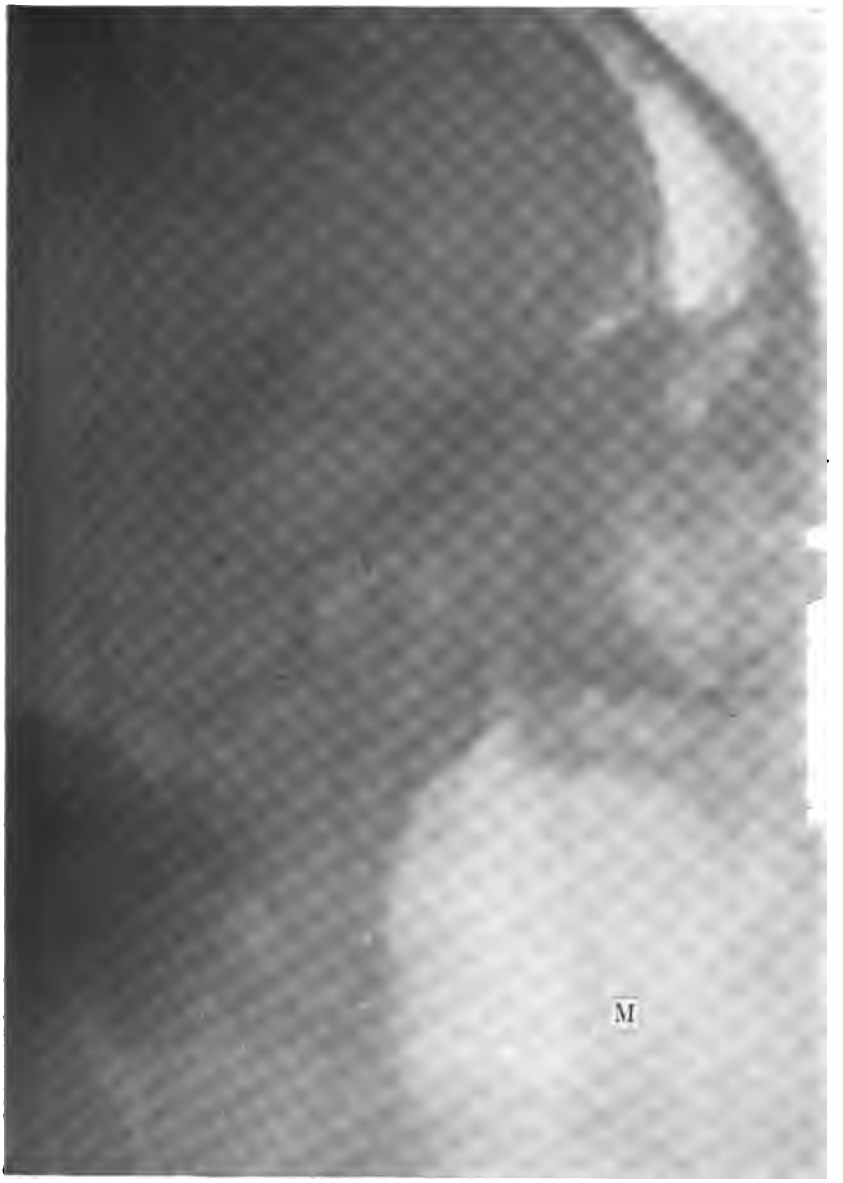
Clinical state of diminished functional activity, when associated with tumor, may be due either to an actual loss of glandular tissue, as from partial destruction by an infection or malignant growth, or by what is more common, the mere "blocking of the secretion activities" from a superimposed interpeduncular growth. Cushing states that we may expect, first, that in all cases of original hyperpituitarism associated with tumor the functional end result will be hypopituitarism, and, second, that in many of the cases in which existing hypopitui-

PLATE XIX

Same Case as Plate XVIII.

Note maxillary rather than mandibular prognathism of the true acromegalic, also posterior portion of the ears. (From Cushing's Pituitary Body.)

PLATE XX



Same Case as Plate XVIII.

Portion of cranial radiogram (natural size), to show upward extension of frontal sinus, enormous maxillary antrum (M is its centre), enlarged bowl-shaped sella (indicated by dots). (Photograph horizontal.) (From Cushing's Pituitary Body.)

tarism is the striking feature, traces at least of an early tendency to hyperpituitarism can be detected.

Much valuable data has been obtained by Cushing and others regarding the normal physiology of the pituitary body and the effects of administering the gland, as well as the symptoms produced and the indications for treatment through animal experimentation. Through injection of extracts of the gland, ingestion of the extracts, glandular transplantation, and the extirpation methods much valuable data has been obtained. It will be impossible to name the various steps by which these facts were obtained and the methods used, but the most important conclusions will be given.

Experimental Hypopituitarism.—Experimental hyperpituitarism has not so far been produced, but hypopituitarism has been the basis of our knowledge through the method of partial extirpation. Some of the symptoms produced by this method will be described briefly.

(1) *Cutaneous Changes.*—Cutaneous changes or adiposity are observed in most all the animals with hypophysectomy. The deposition of fat is widely distributed, not only in the tissues, but in the organs of the body, especially in the liver, and many of the ductless glands. Boggy edemas were also observed. The skin becomes dry, dense, and less mobile than usual. The hair is bristly and tends to fall out in patches, thus closely resembling changes of experimental myxedema (hypothyroidism).

(2) *Disturbances of Body Temperature.*— Disturbances of body temperature were noted when hypophyseal deficiency of a marked degree was present. The temperature was subnormal and could be raised either by subcutaneous injection or ingestion of the whole gland extract.

In cases of anterior lobe deficiency it was found that the thermic reaction occurred only when pars anterior preparations were given.

This thermic response to injections of boiled anterior lobe extract has been used by Cushing when states of anterior lobe deficiency are suspected.

(3) *Disturbance of Growth.*—The growth appears to be retarded after hypophysectomy, although there is an increase in weight.

(4) *Mental Changes.*—In a number of animals a certain degree of mental dulness was observed, and in some occasional epileptic fits were noted. Some animals appear simple and foolish, and some are insensitive to pain. Cushing argues that some of the psychic disturbances described in clinical hypopituitarism may be due to glandular insufficiency rather than to possible effects of a growth upon the cortex.

(5) *Alterations in Carbohydrate Tolerance.*—After hypophysectomy a temporary glycosuria occurs, followed by a short period during which the assimilation limit is below normal, and subsequently the animals acquired such a tolerance for sugar that it often proved difficult to produce glycosuria. Cushing interprets this phenomenon as follows: Normal posterior lobe activity is essential to effective carbohydrate metabolism. An intravenous injection of posterior lobe extract pro-

duces glycogenolysis, and its continued administration in excessive amounts leads to emaciation. A diminution of posterior lobe secretion occurring in certain conditions of hypopituitarism (whether experimentally produced as the result of disease) leads to an acquired tolerance for sugars, with the resultant accumulation of fat. This acquired degree of tolerance for sugars is not only of value from a diagnostic point of view as a means of posterior lobe activity, but it also offers a suggestive therapeutic lead for rational opotherapy.

(6) *Secondary Changes in Other Ductless Glands.*—The close interrelation of the pituitary with other ductless glands is shown by the fact that in consequence of experimentally induced hypophyseal deficiency marked changes occur in the histological picture of many, if not all, of the ductless glands.

The first experiences of Cushing with hypopysectomized adult canines, deprived of all but a fragment of the pars anterior, disclosed a clinical syndrome with adiposity, increased sugar tolerance, lowered bodily temperature, and reverse sexual changes as its chief features. His later experiences with the same hypophyseal defect in puppies disclosed a similar syndrome with a persistence of sexual infantilism and the additional factors of skeletal undergrowth and evident psychic disorders.

Etiology.—Among the factors of etiological importance are inheritance, developmental defects, physiological epochs of life, and infectious diseases and trauma. It is possible that certain inherited deviations may be attributable to transmissible ductless gland properties. Apart from inherited constitutional peculiarities, Cushing found minor congenital defects in five of his cases.

There may be some inherited irritability of the gland in certain individuals, which makes it susceptible to alterations which may be considered abnormal as far as its functional activity is concerned, and such abnormalities be brought out by periods of stress in the more serious physiological epochs of life, through accidental or operative glandular mutilations or as a consequence of disease, notably infections.

Traumatism plays a certain role, for Cushing reports six of his cases where symptoms developed following cranial injury.

Adolescence, puberty, and pregnancy are undoubtedly coupled with disturbances in the ductless glands. The interrelation between the interstitial cells of the testis and ovary and the pituitary body is a most intricate one. But through the *inaccessibility* of the gland and a lack of knowledge of the symptoms of its disordered conditions the whole subject is at present somewhat obscure.

Symptoms.—The symptoms manifested by the various patients of Cushing (which are given in full in the case histories) are grouped for convenience into four classes.

(1) Neighborhood symptoms.
(2) General pressure manifestations.
(3) The secretory or glandular symptoms proper.
(4) Polyglandular manifestations.

PLATE XXI

Fig. 1

Case of Hypopituitarism.

Woman with infundibular tumor, primary optic atrophy, bitemporal hemianopsia, marked adiposity. High sugar tolerance. Amenorrhea treated by sellar decompression, which was unsuccessful. Subtemporal decompression and glandular therapy, with improvement. Note stubby hand and marked adiposity. (From Cushing's Pituitary Body.)

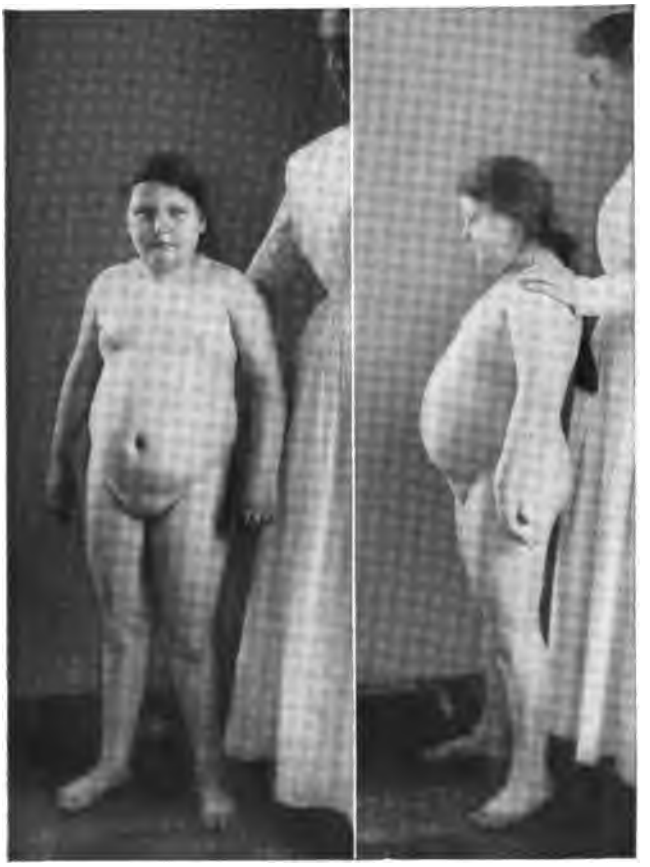
Fig. 2

Same Case as Plate XXII.

Note scar on brow, small pudgy hand, with tapering fingers.
(From Cushing's Pituitary Body.)

NOT FOR LOAN

PLATE XXII



Case of Post-traumatic Hypopituitarism in a Child, with Extreme Adiposity, High Sugar Tolerance, and Epilepsy.

Marked improvement with whole gland feeding (pituitary).
(From Cushing's Pituitary Body.)

And he emphasizes the fact that these symptoms be taken as a "signpost" to the lesion, to be followed when no other symptoms occur to help in the diagnosis.

NEIGHBORHOOD SYMPTOMS. — Of the subjective discomforts, *headaches* are one of the most prominent symptoms. They are usually bitemporal, and often severe and persistent. They are of different type from those due to a general increase of intracranial pressure, and often subside with a stationary process or with a full distention of the capsule and widening of the sella turcica. *Photophobia* is another frequent complaint associated with deep orbital discomfort and sensitiveness of the eyes to pressure.

Deformation of the sella turcica as shown by the *x*-ray are a most useful adjunct to the investigation of hypophyseal disease, and also may be of accessory value even when there is but little alteration as shown by the shadow. Three types of deformation are given by Cushing, a full detailed discussion of the interpretations of which, obviously, cannot be gone into here.

Visual disturbances are the most common and most serious of neighborhood signs. *Atrophy* of the *optic nerves* is a primary affection and *choked disk* does not appear until the later stages, when it appears as a general pressure phenomenon.

Distortions of the visual field can be demonstrated in practically all cases. Homonymous defects are half as frequent as bitemporal ones. Tendencies toward temporal defects must be carefully looked for. Abnormal pupillary conditions, oculomotor implications, slight nystagmus, and anosmia have been frequently observed. Unexpected and intermittent discharge of mucus through the nasopharynx may occur, and a tendency toward adenoid formation may be noted. Cerebrospinal rhinorrhea was present once in Cushing's series, and was the only instance of true cerebrospinal fluid escape.

GENERAL PRESSURE SYMPTOMS.—These are of extreme importance and their recognition may affect the operative prognosis. Headache may be the only symptom, but usually there is extracranial evidence of venous stasis shown by the fulness and tortuosity of the palpebral venules as well as of the larger veins of the scalp. The condition is easily recognized when choked disk is present, but the symptom may be wanting in a large number of cases.

THE GLANDULAR MANIFESTATIONS.—These are shown by the modifications of skeletal growth. Gigantism and acromegaly are probably due to a hyperplasia of the pars anterior, although this is not definitely proved. Most of the evidence seems to point to an oversecretion, whether normal or pathological, and this is at least an acceptable working hypothesis. However, it is probably certain that in the greater number of the cases, as the malady progresses, glandular insufficiency supervenes. It is often difficult to distinguish between gigantism and acromegaly, or to say where the former ends and the latter begins. But at least we are reasonably sure of the fact that they are both due to the same factors, hyperpituitarism.

Skeletal undergrowth is probably caused by glandular insufficiency, which has developed before full stature is attained. It is apparent in primary hypopituitarism that the *hormone of growth* is wanting, and consequently there is a lack of skeletal development, just as in hyperpituitarism the *hormone of growth* is in excess, and we have the gigantism and acromegaly. When hypopituitarism dates from the adolescent period there occur other changes aside from skeletal undergrowth. Infantilism, adiposity, reverse sexual condition, emaciation, spontaneous glycosuria and slightly elevated temperature which follows anterior lobe administration are notable changes.

The cutaneous and *subcutaneous changes* are due to hypertrophic alterations which occur in the skeletal covering in hyperpituitarism. External thickening of the epidermis is largely responsible for the coarse features in acromegaly, increase in the size of the hair follicles and hypertrophy of the papillæ, with enlargement of the secretory glands occurs, the latter causing the skin to be greasy and moist. The cutaneous features of primary hypopituitarism are the reverse. The skin is smooth and transparent and notably free from moisture. *Axillary* and *pubic hair* is absent, though abundant on the scalp.

Cushing attributes the *symptom-complex* of adiposity, high sugar tolerance, subnormal temperature, slowed pulse, asthenia and drowsiness to a *secretory deficiency* of the *posterior lobe.*

The *adiposity* of hypopituitarism is a generalized one, not limited to the panniculus, but it involves the internal organs, and in the liver particularly the cells are replaced by globules of fat.

Adiposity may also occur in association with deficiencies on the part of other ductless glands, especially of the sexual organs, of the thyroid, and possibly, too, of the pineal and adrenal glands. But the hypophyseal adiposity, and by far the most frequent type, is caused by absence of a hormone essential to carbohydrate metabolism contained in the posterior lobe secretion. The deposition of fat may be assumed to be due to deficiency rather than to any perversion of secretion of the posterior lobe.

Most of the cases of *adiposis cerebralis* (Schuster, 1900) are of pituitary origin. The *childhood types* are divided into three groups, in which adiposity is a common clinical picture, but the groups differ chiefly in the character of dysgenitalism which they display and the presence or absence of overgrowth.

Thus in Fröhlich's type, coincident with a hypophyseal tumor, there is a stunting of growth, as well as a hypoplasia of the genitals. In Marburg's type there is no pituitary growth, but an internal hydrocephalus, accompanied by skeletal overgrowth, and a precocious hyperplasia of the sexual organs. A third type, hydrocephalic and absence of pituitary tumor, there is obesity and skeletal overgrowth, associated with genital hypoplasia. Hence, coupled with obesity, we may have the combination of overgrowth with sexual precocity or the reverse, or of undergrowth with sexual precocity or the reverse.

PLATE XXIII

Fig. 1

Characteristic Hand of Acromegaly.

Note heaping of tissues about nails, "type en large" of Marie. Compare with Fig. 2 below. (From Cushing's Pituitary Body.)

Fig. 2

Typical Tapering Hand of Adolescent Hypopituitarism.

Compare with Fig. 1 above. (From Cushing's Pituitary Body.)

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PLATE XXIV

Radiogram Showing Characteristic Phalangeal Changes of High Degree in an Acromegalic.

Same case as hand of Fig. 1, Plate XXIII. Note terminal tufting of bones. (From Cushing's Pituitary Body.)

The *adolescent* and *adult* types vary with the age of onset of the diseases, and will be modified by the previous growth and development.

The *carbohydrate tolerance* is a most important symptom, especially from a diagnostic standpoint. A high tolerance of sugar is found to be associated with hypopituitarism or posterior lobe deficiency. And glycosuria is usually found in hyperpituitarism, and in cases of the latter condition a high tolerance for sugar is an indication that as far as the posterior lobe was concerned they were passing from hyper- to hypopituitarism.

The intravenous injection of posterior lobe extract in normal animals can produce glycosuria, and what is more to the point, Cushing found that the assimilation limit, which had been really raised by experimental removal or obstruction of the posterior lobe, could be again lowered to a normal or even a subnormal level by injections or oral administration of extracts, particularly of the posterior lobe.

Polyuria and *glycosuria* have an interesting relation to cranial injuries, and Cushing believes that these conditions are due largely to associated injures of the pituitary body. Polyuria, associated with pituitary troubles, is probably due to the excessive elaboration of the hormone contained in the pars nervosa secretion which activates renal secretion.

Variations in body temperature occur with few exceptions and a subnormal temperature is usually to be found in cases with lowered metabolic activity, characterizing hypopituitarism. In individuals who show the subnormal temperature of this condition, sufficient dosage of whole gland preparations serve to restore the normal temperature which again drops to subnormal if the preparation is withdrawn.

The *thermic reaction to pars anterior* injections cannot be as definitely established as the alteration of carbohydrate tolerance in posterior lobe deficiency. Still, when there is a definite insufficiency, injection of the anterior lobe will produce a thermic reaction of short duration. This reaction will not occur with ingestion of posterior lobe extract.

Blood-pressure changes are common, and a low arterial tension and a slowed pulse is a common manifestation of hypopituitarism. Drowsiness or torpidity and *insensibility to pain* are usually pronounced in hypopituitarism.

Psychic disturbances are found in most of the patients and are divided into two categories: (1) Those due to the involvement of the temporal and frontal lobes by the pressure distortion, or growth. (2) Those due wholly to the effect, on the one hand, of an excess or perversion of glandular secretion, or, on the other hand, of an insufficiency of secretion.

In the first mentioned type the neighborhood symptoms have already been discussed. Notably, there is an utter lack of appreciation of and complete indifference to the existing condition.

In the second group, that of hypophyseal derangement, there are two classes, (*a*) *with hyperpituitarism* certain temperamental changes occur, with wakefulness, lack of concentration, indecisiveness, irritability, distrust, etc.; states not unlike moderate grades of dysthyroidism. When

hyperpituitarism dates from early life the individual is usually deficient in education training. Pathological giants have a low mental development as a rule, but there are a few exceptions. (*b*) With *hypopituitarism* all grades of mental disturbances occur, from mild psychoses to extreme mental derangement with epilepsy.

MILDER GRADES.—In the milder grade of dyspituitarism, as exhibited by some of the acromegalies, we see inability to concentrate, impairment of memory, etc., and in one of Cushing's cases all former powers of mental activity were restored with the readjustment of a physiological balance through glandular administration. In most cases when hypopituitarism is sufficient to cause adiposity some deviations from the normal mentality may be expected. Drowsiness seems to be linked with the mental symptoms, but this does not account for all these symptoms. Psychic disturbances of a greater or less degree were common in Cushing's series, especially in patients with pressure manifestations which obscure and confuse those due to glandular changes. The occurrence of *epilepsy* in thirteen cases observed by Cushing he considers as important. In all of these cases showing convulsive seizures hypopituitarism was coexistent, and this circumstance must be regarded as more than a coincidence. The clinical picture is also modified by the involvement of various other ductless glands, such as the thyroid, sexual, thymus, adrenals, and the pineal gland, and probably the pancreas. Every hypophyseal disorder elicits polyglandular manifestations.

But space will not permit a discussion of these symptoms in detail. The reader is advised to read the work of Cushing for further information regarding the subject.

Treatment.—A variety of problems are presented when the question of treatment is discussed. In some mere symptomatic medicinal measures are called for, in some operative relief, and in some the administration of glandular extracts is necessary to supply a deficient secretion.

Sellar decompression may be necessary to alleviate headaches of capsular distention, while in another case partial extirpation of a struma will be required to relieve chiasmal pressure and avoid blindness.

In cases where no neighborhood symptoms are present, glandular feeding may be all that is required. But the cases are not always so simple and uncomplicated, and frequently combinations of the above may be required to combat the disorder; often all of these measures may be necessary in a given case.

According to Cushing, the treatment cannot be considered strictly medical nor surgical, but various methods to meet the individual demands of the individual problem must be adopted.

SURGICAL TREATMENT.—In discussing surgical procedures he emphasizes the point that there can be no one standard operative measure suitable to all cases.

(1) To meet *general pressure disturbances* a subtemporal decompression is indicated. In the early stages of the disease such an operation

is effective. In the later stage of the process it is often of no benefit. Severe headaches cannot always be ascribed to general pressure symptoms, but may also be due to local distention of the hypophyseal pocket, and it is often difficult to differentiate between the two conditions. Hence, sellar decompression may be indicated rather than subtemporal decompression.

(2) To combat functional hyperplasia, similar measures are used as in hyperthyroidism, when it has been found that no matter whether the symptoms were due to an excessive secretion or to a perversion of secretion, partial extirpation of the hyperplastic gland will in many cases relieve the constitutional symptoms of the disorder. Thus, such measures have been employed by Cushing to relieve the symptoms of hyperpituitarism, with beneficial results, but they were not permanent. He considers that operative measures cannot hold out any promise of permanent control of the disorder where there is an absence of a degree of hyperplasia sufficient to cause neighborhood symptoms. When the extreme enlargement of the gland due to the formation of adenomatous struma causes neighborhood symptoms (whether or not antecedent symptoms of acromegaly have been present) the surgical aspect stands on firmer ground.

(3) An actual attack upon the lesion itself is necessary to afford relief to *neighborhood symptoms*, either to partially remove it, or to give it more room so that it may continue to enlarge without jeopardizing the adjoining structures, chiefly the optic nerves.

A fragmentary extirpation, or removal of the sellar floor, and opening the capsule to encourage further growth to a downward direction is the best that can be accomplished; unless there is a cyst causing the neighborhood symptoms which can be drained the above procedure is indicated. The methods of procedure and surgical technique are given in detail by Cushing, and will not be discussed here. He concludes that the chief service of surgical therapy in hypophyseal maladies is to afford relief to neighborhood symptoms. A lesser service is the palliation of the manifestations of increased intracranial tension, as in tumors originating elsewhere. Surgery may also render a third service in the partial extirpation of the gland in states of hyperpituitarism, and still a fourth service is possible in states of hypopituitarism through *glandular* transplantation. Such a procedure may prove, on further experience, to be more effective and satisfactory in counteracting glandular insufficiency than by prolonged administration of extracts. However, experience with glandular transplantation in thyroid disorder, such as glandular deficiency, has not been as successful as the treatment by extracts.

The most successful implantations in experimental work were made in the cerebral subcortex and in one case in Cushing's series such a procedure was apparently successful. The surgical measures can be summarized as follows:

(1) Sellar decompression for (*a*) persistent hypophyseal headaches, (*b*) for the purpose of encouraging the extension of a glandular struma

in the direction of the sphenoidal cells rather than into the cranial chamber.

(2) The partial removal of a hyperplastic gland in the active stage of hyperpituitarism.

(3) The partial removal of a tumor of struma for the relief of neighborhood symptoms.

(4) A subtemporal decompression for the palliation of pressure symptoms when an intracranial extension has occurred.

(5) A subtemporal or sellar decompression or both, to permit of the more favorable direct application of radiotherapy.

(6) The exposure of the brain or of some other organ in case of marked hypopituitarism for the purpose of implanting a viable gland.

MEDICAL TREATMENT.—Other therapeutic measures discussed by Cushing are *glandular administration, glandular transplantation,* and *radiotherapy.*

Glandular administration is indicated when there is evidence of a known deficit of glandular secretion. Bovine glandular extracts are usually employed. The proprietary preparations are not sufficiently standardized, so that a given weight of a tablet does not always imply the amount of fresh gland substance or desiccated gland substance it contains. One has to exercise great care to know the exact dosage. The two methods of administering the gland are by *ingestion* and in *hypodermic injection.*

At present the whole gland preparation must be used, as usually both divisions of the gland show functional deficiency when subjected to pressure. Cushing, however, is of the opinion that the time will come when the symptomatic manifestations of underaction of one or the other lobes of the gland will be sufficiently well recognized to justify the administration of extracts of that division alone. The rational dosage of glandular extract to be administered by mouth can possibly be determined by giving an individual daily an amount of glucose or levulose sufficient to produce a temporary mellituria in a normal individual of equal body weight; meanwhile, an increasing amount of the extract is administered daily, until the condition of increased carbohydrate tolerance which the patient exhibits; hyperglycemia occurs, with a trace of sugar in the urine.

In some cases, however, there is such an abnormal intolerance for sugar that it takes an enormous and prohibitive amount of extract to produce glycosuria. In one case Cushing found that 100 grains of the Armour whole gland extract three times a day failed to produce glycosuria with 200 grams of levulose.

In some cases where operation has been performed it may be necessary to resort to glandular feeding to counteract the secretory deficiency. But the administration of the extracts by the mouth is not always successful, and often large amounts have to be given to produce any amelioration of the symptoms.

The *hypodermic injection* of the extracts apparently is more efficacious, and Goetsch found that the difference of efficacy was in about the

proportion of 4 to 1, also that intravenous injection of the extract was more efficient than injection in the tissues in the proportion of 2 to 1.

Cushing reports several cases where no effect was obtained by feeding the gland, but that an immediate effect was produced by injection. But as injections cannot be prolonged indefinitely, it may be necessary to resort to glandular transplantation. This was done in one case where a cyst had destroyed the pituitary body, with excellent results.

Radiotherapy has given most encouraging results in controlling the advance of a strumous hyperplasia in some of Cushing's later cases. Certain observations of other investigators (Gramegna, Béclère, and Jaugeas) show that in certain forms of hypophyseal tumor, prolonged röntgenization has a notable effect to ameliorating the neighborhood symptoms. Cushing recommends radiotherapy as a supplemental measure to surgical measures. He reports several cases where vision has been restored after almost complete blindness, under the combination of partial surgical removal of the struma and subsequent repeated exposures to the *x*-rays.

The treatment of these disorders, while still somewhat new and uncertain, has advanced rapidly under such skilled men as Cushing and his associates. Continued experimentation will, no doubt, add much to our knowledge of the pituitary disorders and their rational treatment.

ANGIONEUROSES AND TROPHONEUROSES

Scleroderma.—This is a nutritional disturbance of the skin and subcutaneous tissue, of unknown pathology, but considered to be a trophoneurosis. Two forms are recognized. A local or circumscribed type in the form of spots and a diffuse type. The spots at first isolated gradually become confluent at a later stage and merge into the diffuse form. It may occur at any age, but the largest proportion of cases occur in middle-aged women. Children may be attacked, but usually the disease is more apt to be acute when it occurs at an early age.

Etiology.—In some cases members of the same family have been attacked, but heredity would seem to play an unimportant role in the causation of the malady. Acute infections are believed to be important etiological factors.

Influenza, otitis media, diphtheria, pneumonia, typhoid fever, erysipelas, scarlet fever, tonsillitis, tuberculosis, and syphilis have been followed by scleroderma. Cases after infections have often been more acute, and larger areas of skin may be involved in a few days.

Other causes favoring the disease are disturbances of menstruation, neuropathic disposition, protracted cold, emotional disturbance, trauma, etc. Osler could not find *any one factor* of special moment in a series of eighteen cases, and he concludes that in the majority of cases healthy persons are attacked, and that the cause is really unknown.

Symptoms.—The face, neck, and upper extremities are chiefly affected, and the upper part of the trunk may be involved. It is extremely rare

in the feet. A universal scleroderma is extremely rare, occurring only in about 16 per cent. of the cases.

There are three modes of onset: (1) *the simple atrophic*, (2) *edematous*, (3) *the erythematous*, of which the atrophic is the most common (Osler). Kaposi distinguishes two or three stages in the disease, *i. e.*, *stadium elevatium*, *stadium induratum*, and the *stadium atrophicum*. The first stage usually escapes notice. In the indurative stage the skin is hard, firm, tense, and often has a glossy, polished look. In the advanced stage the condition cannot be mistaken. The smooth white tense skin, with the veins unusually prominent, with its unyielding subcutaneous tissue, is so characteristic that the condition is recognized at the first glance. The atrophy may extend to the bones and deep parts, especially the muscles. Swellings and knot-like thickenings appear on the bones. Myositic changes in rare instances may develop where the skin is not affected. If the hands are involved the fingers may become stiff and crippled, the bones thinner, the muscles indurated, shrivelled, and atrophied. Ulceration and gangrene are not uncommon in the later stages.

A very characteristic look is given to the face by the smoothness and stiffness of the skin and the shortening of the lips and alæ nasi. The expression is rigid and the movement of the facial muscles becomes more and more restricted. The *subjective symptoms* are pain, paresthesia, itching, a feeling of tenseness, and the disorders due to the restricted movements.

Vasomotor symptoms (local cyanosis, edema) may precede the sclerodermic process, and they play an important part in its later course. Active hyperemia may also be present. Cutaneous hemorrhages may also occur in the disease. The sensibility is hardly ever affected. The absence of the normal vasomotor reflex is mentioned by Curschmann. Muscular atrophy may be considered with scleroderma, and may occur in distant parts. Symptoms of paralysis are rare. Articular affections occur occasionally. Mental depression is a common symptom and general marasmus develops in severe cases. Local panatrophy is very probably identical with the disseminated form of scleroderma and hemiatrophy. Trophic changes other than the scleroderma itself may occur. In some cases *local suppuration* of the nails and ulcers about the fingers and knuckles occur.

The *secretory functions* of the skin are usually not disturbed, and there is no change in the secretion of the sebaceous glands. Telangiectasis often develops in the sclerotic skin, but usually this condition does not appear until very late in the disease. Osler calls attention to the similarity of the telangiectasis (of scleroderma) to the changes of the sclerotic tissue in *x*-ray burns. In many cases the edema with efflorescence and a firm solid infiltration is the earliest symptom.

This condition may last for weeks or months, then the skin begins to get hard and tense (the stage of induration), and the color changes to a dead white, or it has the tint of old marble or parchment. The consistency of the skin changes, and it appears like a bit of frozen skin,

and cannot be picked up or pricked between finger and thumb. The folds are obliterated and the wrinkles disappear. The face appears smaller and has a mask-like appearance. The lips are thin and nose pointed and narrow, the cheeks smooth, the ears shrunken, the eyes expressionless, and the *diagnosis* may be made at a glance. The back is rigid, the neck fixed, and the patient resembles a frozen corpse or mummy, without the power of motion except in the eyes and tongue.

In the atrophic stage *three changes* occur. Atrophy follows the induration. The skin becomes thinner but not any softer. At the lines of extension three zones may be distinguished, an inner yellowish brown, then a white indurated portion, and beyond, a narrow zone of erythema. It may take weeks or months before an inch is covered. The *atrophied skin* may gradually grow more natural and softer.

In the *second change* the involvement of subcutaneous tissues binds the skin tightly to the adjacent parts. By the sclerosis of this tissue the skin is no longer mobile, and there is no movement over the muscles or bones. The change of color, most frequently increased in the pigmentation, characterizes the *third change*. The skin becomes parchment brown in color and areas of leukoderma almost always accompany the pigmentation.

Prognosis.—The prognosis is extremely grave. Remissions, improvement, and even recovery may possibly occur, but they cannot be expected in advanced stages. The acute form in children offers the best prognosis, but even in these the disease often has a subsequent chronic course.

Osler reports death in two years in one of his cases. The affection usually progresses gradually and lasts for many years. The disease may become stationary after five years' duration (Osler). In the arrested stage of the disease the patients may be fairly comfortable, or they may suffer great disability. Death may occur suddenly. Cachexia and marasmus carries off many cases. Other complications, bronchial, renal, or pulmonary disease, may cause death.

Diagnosis.—In the differential diagnosis, dermatomyositis comes most into consideration. But the diagnosis is rarely in doubt. In two of Osler's cases a coexistence of Raynaud's disease complicated the diagnosis. The preliminary erythema and infiltration may strongly suggest leprosy. But the sclerodermatous erythema is never extensive for a long period without the other changes. Difficulties only arise in the diagnosis in a few rare instances, when the vasomotor disturbances are extreme and when the local asphyxia suggests Raynaud's disease.

Treatment.—The treatment at the present time is far from satisfactory. Osler thinks that no remedy has any influence on the disease except perhaps the *x*-rays. With new and improved methods of application the *x*-rays should be given a thorough trial.

In acute cases hot baths and massage should be tried, and the *uses of all forms* of hydrotherapy is advised. Massage is helpful, by keeping the skin softer and promoting nutrition. All such measures and electrical treatment should be carried out thoroughly and as early in the

disease as possible. The baths at Hot Springs, Va., or Mt. Clemens, or one of the sulphur or alkaline baths of Europe are recommended by Osler.

Local and central galvanization may be useful. Local inunctions of napthol-salicylate ointment or ichthyol ointment are advised. Ebstein found baths of acetate of aluminum, massage with powdered boracic or salicylic acid, and the internal use of potassium salicylate to be beneficial.

The salts of iodine, thyroidin, and other thyroid extracts have been recommended. Osler found very little effect from the use of thyroid extract, although in some cases it appeared to arrest or alter the progress of the disease.

Thymus extract, adrenalin, suprarenal extract have also been used. Osler suggests the use of fibrolysin. Peat and sulphur baths have had a good effect in some cases, and ichthyol in the form of baths, and internal preparations (calcium, sulpho-ichthyolate) have been found efficacious. These baths and the use of cod-liver oil in increasing doses have been tried with success by Osler.

Some authors report improvement after subcutaneous injection of thiosinamin (one-third to one-half a Pravaz syringe of a 15 per cent. alcoholic solution every other day).

Acroparesthesia.—This affection is characterized by a localized paresthesia, especially of the hands and finger tips, rarely of the feet or toes. It develops gradually, although some cases are acute, and the *course* is chronic. It is usually observed in women, especially at the climacteric, but rarely before the thirtieth year. Men are very rarely affected.

Etiology.—The causes are somewhat obscure. Besides the climacteric, exposure to cold, the effect of a constant application of cold water or water of different temperatures upon the hands (washerwomen), overstrain of the hands in sewing, knitting, etc., may be etiological factors. Anemia, cachexia, and pregnancy may apparently also be causes. The disease tends to develop upon the neuropathic diathesis.

Symptoms. — The symptoms are in most cases entirely *subjective*. The patient complains of paresthesia in the hands, especially the fingers. Formication, numbness, or a feeling that they are asleep are expressions used by the patient to describe the sensation. These symptoms are most severely felt in the *tips of the fingers*, but in a lesser degree they may be felt in the proximal parts of the extremities. The sensations may be so intense as to be *painful*, but rarely so to a marked degree. The sensations are continuous, being seldom interrupted. They are almost always more marked at night and in the morning, before and after rising, so that fine handiwork cannot be performed in the early morning. The patient tries to ease the sensation by rubbing, beating, or warming the hands. The formication is often more acutely felt when the patient tries to grasp an object. In some cases there is a feeling of cold and stiffness in the fingers. The affection is frequently limited to one hand or to certain fingers

The only *objective* symptom is a slight *decrease in the sensibility* of the finger tips, but this feeling may be present at one time and absent at another. In some cases an evident pallor of the fingers has been noted. All other functions are normal. The course is chronic, and the disease may last for many years although some cases have a rapid course. The prognosis as to recovery is very unfavorable, although spontaneous recovery or great improvement may occur after many years' duration. There is no danger to life.

In the beginning it may be mistaken for some other nervous disease. Tabes dorsalis may begin with paresthesia of the upper extremities, but this is soon followed by lightning pains and ataxia of the arms. Raynaud's disease may commence with paresthesia, but local asphyxia, cyanosis, and finally gangrene follow.

A similar syndrome, described by Rosenbach, is characterized by the presence of tubercles on the phalanges.

Mixed forms of acroparesthesia and tetanus have been described. Hysterical persons often complain of paresthesias in the hands, but this symptom is only intercurrent and inconstant, and its character can usually be easily recognized by the effect of mental influence upon it. Acroparesthesia is probably due to a condition of irritation in the vasomotor centres, by which the arteries are contracted, causing impairment of the nutrition of the sensory nerve ending. It is possible that the disease originates in the spinal cord.

Treatment.—This is not always effective, and the disease may continue stubborn after all methods and treatment have been tried. Arsenic, strychnine, and phosphorus have been recommended. Galvanization of the medulla oblongata, the cervical cord, and the sympathetic nerves has been tried with the some success; also local faradism. Quinine, 3 to 5 grains, given just before bedtime, has sometimes proved beneficial, and *ergotin* has also been recommended. Overstrain of the hands and the use of cold water should be forbidden.

Angioneurotic Edema, Acute Circumscribed Edema of the Skin (Quincke).—This is a disease characterized by circumscribed edematous swellings of the skin and subcutaneous tissues of the face and limbs, appearing spontaneously, and lasting from a few hours to a day or two.

The description of Quincke in 1882 called general attention to the disease, and it often goes by his name.

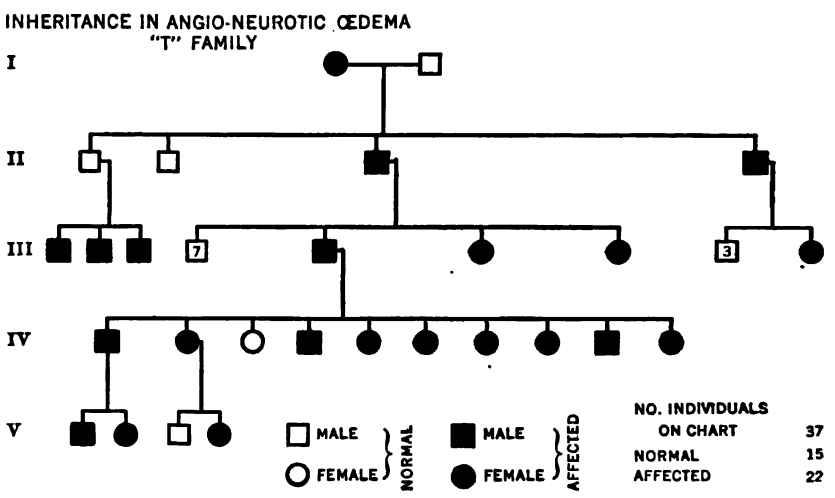
Etiology.—The disease usually affects young people, but it may occur at any period. Some observers find it more common in women (Osler, 14 to 4), while others find it more frequently in men. In a majority of cases no exciting cause can be discovered. Diet may influence some cases, but usually the diet has no effect on the disease. The most important factor in the disease is a nervous disposition. A combination with hysteria, neurasthenia, exophthalmic goitre, or urticaria has been observed. The condition is closely allied to urticaria, and is found described as "giant urticaria."

Osler finds that emotional disturbances are apt to bring on an attack, and that some of the most obstinate cases are in neurasthenic subjects.

It is not uncommon in the psychoses. Osler reports the disease in depressed and melancholy patients, one of which committed suicide. The writer has seen a very pronounced type in a case of dementia præcox in which various parts of the body, especially the extremities, were affected, and quite frequently the penis and scrotum were involved. The condition lasted for several years and then ceased. Menstrual disorders may also be associated with transitory edema. In individuals strongly predisposed, or with a marked hereditary taint, the association of the edema with the menstrual periods is common. At the climacteric, vasomotor disturbances are frequent, and among other symptoms, swelling of the hands and feet and puffiness of the face have been observed. Very slight trauma may suffice to bring on an attack in susceptible individuals. In a certain number of cases the edema occurs only on the exposed parts, such as the hands and face, and may, to some extent, be influenced by cold.

Heredity apparently plays a very important role in the disease, and many observers have reported families in which it has occurred. Osler gives a chart of such a family, which is reproduced below.

FIG. 39



The direct cause of the trouble is unknown, but is supposed to be of sympathetic origin. The difference between the edema and wheal of urticaria is one of degree of exudation. A local venous spasm has been assumed as the cause by some authorities. The nerves may have a direct influence on the capillary cells, and may excite them to the secretion of lymph, a view which seems to be upheld by the experiments of Heidenhain and Starling.

Symptoms.—According to Osler there are three types of the disease, *mild, moderate,* and *severe.* In the mild type the areas of edema are small, and the duration only a day or two, or may be only a few hours.

The attacks occur at intervals for five or six months, and then disappear. The edema may always occur in the same spot, such as back of hand, the eyelid, or a finger. The general health is not disturbed, and the outlook for recovery is good.

In the cases of the moderate type the manifestations are more severe, and the disease lasts for a much longer time, even for a lifetime. The swellings are more voluminous and troublesome by reason of their large size. The hand may be like a boxing glove. The under lip may be so swollen that it is difficult to feed the patient. Both eyes may be closed. In these forms the mucous membranes may be affected. Hemorrhagic edema of the walls of the stomach may cause colic and vomiting.

The attacks may begin in childhood and occur throughout the life of the patient and render his life a burden.

In the third group, or severe types, the localization of the edema in the throat or larynx threatens life by causing edema of the glottis. This is so sudden that it frequently causes instant death.

The swellings are, as a rule, simple edema without erythema, an infiltration of the subcutaneous tissue and the skin. The character of the swelling will depend upon the laxity of the tissue involved, thus the involvement of the eyelids and lips represent the two types. In the former the edema is gelatinous, soft and puffy, pits deeply, and has a bluish-white tinge. In the lip the swelling is firmer, may not pit on pressure, and is opaque white. The areas are usually sharply circumscribed, and vary greatly in size. Subjective sensations may be entirely absent, and no pain whatever can be felt. Often the patients will not be able to tell the location of the swelling without seeing it. Besides the local edema, Osler mentions other regions which may be involved. At times the *mucous membranes* may be severely involved, especially of the mouth and cheeks, alone or with the tongue. The *respiratory passages* are sometimes involved and present a very serious complication, often ending in death when the larynx is involved. The *gastro-intestinal* complications are more frequent and were found by Osler in 34 per cent. of his cases. These symptoms may precede for months the edema, and often laparotomy is performed for a suspected appendicitis or gallstones. There is frequently an edema of the wall of the intestines. Colic is the most common abdominal symptom, which may come on suddenly and prove very obstinate. The crises are very serious and may often be mistaken for other conditions needing operation. At times diarrhea, pallor, feeble pulse may suggest perforation of a gastric or duodenal ulcer. *Renal symptoms* may also be present, but are not common; occasionally there is albuminuria.

Diagnosis.—The diagnosis is not difficult because the edema is localized, white, transitory, and recurrent. Often it is difficult to differentiate between angioneurotic edema and swelling of a local thrombosis, especially when the thrombosis is deep and the swelling localized. Severe recurrent generalized hives may have many of the features of edema. Preliminary edema of scleroderma may be mistaken for this

disease, but the edema of the former is permanent, and the hardening and change in color of the skin soon become apparent.

Prognosis.—The prognosis is variable. The attacks as a rule usually recur. Many patients who have the disease for a year or two, entirely recover. The younger the patient, according to Osler, the better the prognosis.

The familial forms are the most obstinate, and may persist to an advanced age. When the attacks are caused by diet, the outlook is good. Only occasionally is the disease fatal, and then through edema of the glottis

Treatment.—As the disease is largely of nervous origin, treatment directed toward strengthening the nervous system will be beneficial. Particular attention should be given to the general health. A suitable course of hydrotherapy, massage, and electricity should be given.

An outdoor life is beneficial. In young persons the outlook is especially good, particularly when associated with colic or gastro-intestinal disorders. Osler reports several patients in whom the cure lasted for eight or ten years. He cites the cases with involvement of the eyelids in young persons as obstinate and resistant to all forms of treatment.

Aside from looking after the general health, a careful inquiry should be made as to the influence of diet. Coffee or tea may be the offending substance, or the patient may be eating too much meat. Milk diet has benefited some patients. The use of laxatives and aperient waters is beneficial in some cases, particularly in strong full-blooded people. In most cases, however, the diet will have but little influence on the disease.

In children when the edema is associated with gastro-intestinal disorders the latter should be carefully treated. Many cases have been treated with the idea that intestinal intoxication was at the bottom of the trouble. In flatulency, irrigation of the large bowel is effective. Many drugs have been recommended, such as strychnine, the bromides, alkalies, the salicylates, antipyrine, ergot, belladonna, etc., and in the chronic forms all sorts of drugs have been used. Atropin and quinine have been beneficial in some cases, and Oppenheim has reported cures by the use of quinine. Injection of atropin has been recommended. Krebich recommends arsenic and the avoidance of exciting causes, especially thermal influences. Osler finds only two drugs of much service. Nitroglycerin or the nitrites given in ascending doses until effects are produced, *i. e.*, until the patient feels the flushing and the headache. Osler also emphasizes the fact that the dose must be suited to the individual—that it is useless to order simply one to two minims of a freshly made solution of 1 per cent. nitroglycerin. The dose should be made to suit the individual, who should be told to increase it gradually until the effects are felt, and then continue the treatment for a period of ten days, with intervals of five days. The other drug used by Osler is calcium, recommended by Wright, and he claims to have given it a thorough trial, with very good results. He uses calcium lactate grains 20 (gms. 1.3) three times a day.

In children with attacks of colic and periodic outbreaks, gray powder given for a week or ten days is beneficial. The gastro-intestinal crises require prompt treatment; often it is necessary to give a hypodermic of morphine to get immediate relief. But this should be carefully given, especially in the hereditary forms. Strong carminatives and local applications may be substituted for morphine.

In cases with recurring attacks of edema of the larynx an intubation apparatus should be in the house, and someone should be taught to use it in case of emergency.

Symmetrical Gangrene (Symmetrical Local Asphyxia; Raynaud's Disease).—Symmetrical gangrene may occur independently or appear in the course of other nervous diseases, such as hysteria, traumatic neuroses, tabes dorsalis, syringomyelia, disseminated sclerosis, tumors of the spinal cord and its roots, epilepsy, and exophthalmic goitre.

It is a vascular change without organic disease of the vessels, chiefly seen in the extremities, but also occurring in the internal parts in which persistent ischemia or a passive hyperemia leads to disturbance of function, or to loss of vitality with necrosis of the parts (Osler). It was first described by Raynaud, the distinguished French clinician, in 1862, and since then much of value about this condition has been written. It is not a common disease, Osler finding only 19 cases among 23,000 medical patients at Johns Hopkins Hospital during a period of twenty years. Monroe estimates about 1 case to 3000 patients. It seems to be a disease entirely or at least chiefly due to the *neuropathic diathesis*. Changes in the spinal sympathetic cells have been reported.

Anemia and exhaustion and congenital narrowness of the aorta increase the predisposition. Young people, mostly of the female sex, are most liable to the disease. Cassirer thinks most of the cases occur under fifteen years of age. It is rare in the aged. Courtney reports that it is comparatively common in the mental diseases, but such a condition is rarely found in this country. It is relatively more common in England. Osler states that the subjects of Raynaud's disease are very often neurasthenic, and subject to the greatest depression. In a great number of mental diseases attacks of the disease have been described—manic-depressive psychosis, amentia, and progressive paralysis. But the disease is comparatively rare in those suffering from mental diseases in this country, at least very few cases have been reported, and the writer has never seen a case among patients suffering from mental diseases in the State hospitals.

Etiology.—The most important exciting cause is mental emotion (fright, etc.). Some of the worst cases have been described in hysterical patients. Exposure to cold and suppression of the menses are other causes. Some writers regard the disease as closely related to chilblains. Trauma may also bring on an attack. Washing the hands in very cold or very warm water may also bring on an attack. But in a considerable number of cases no factor of any moment can be determined. Often the disease begins in healthy individuals. However, in the majority

of the cases there is a marked neuropathic disposition. Often the cause remains obscure.

Symptoms.—It has occasionally been observed after infectious disease. In the southern part of this country it is often associated with pellagra, although the condition in that disease may not be a true Raynaud's disease (Wood). The disease almost always comes on in paroxysms. The *attack* commences with paresthesias, a feeling of formication and deadness in the fingers, possibly also in the toes. The fingers become white and cold (local syncope) like those of a dead person. The prick of a pin does not draw blood. There is usually violent pain in the whole extremity for days, or it may only occur in its vital parts. This may precede the attack for some weeks, and sometimes becomes very acute. Local syncope may pass off without any trace, or it may be followed within a few minutes or hours or even later by *regional cyanosis*. The skin at symmetrical parts of the hands, feet, fingers and toes almost always in the *terminal phalanges*, becomes first blue red in color, deep blue, then blue black, and finally black. The pain is intense. The cyanosis is directly followed by gangrene, or the blue-black color becomes red, and the coldness decreases. Redness may be present from the first instead of cyanosis. Recovery is possible in this stage.

Small black spots or vesicles filled with bloody serum mark the beginning of the gangrene. These burst and leave a superficial black crust which gradually exfoliates, or an ulcer is left which gradually heals over. The gangrene may extend into the deep parts, and the whole or greater part of the phalanx becomes mummified. The dead tissue is bounded by a line of demarcation, and drops off in the course of a few months, and the stump generally heals up. As a rule, only slight suppuration takes place. There is practically no fever during the course of the disease. The intense pain has a bad effect upon the general health. Mental disorders may precede an attack, and deep depression may be an accompanying symptom. Gastric disturbances are not uncommon.

The sensibility for all types of sensations, or for some of them only (pain and temperature sense), is greatly diminished in the affected parts, and there is a slowness of sensory conduction. The direct cause is supposed to be some disturbance in the centre for the vasodilator and vasoconstrictor nerves, more often the latter. These centres are for some unknown reason unstable, and fail to respond properly to the external stimuli, and through the imperfect working of these centres the local syncope, asphyxia, and hyperemia take place in the tips of the extremities. The cause for this irritability of the vasomotor centres, the nature of the change in them, and the reason for the symmetrical disturbation, and the explanation of the associated hemoglobinuria, are questions awaiting solution.

As a rule, the gangrene involves the terminal phalanges of certain fingers and toes in a *symmetrical* manner. It is rare for all to be affected. Sometimes the tips of the ears or the nose are involved.

An asymmetrical extension or unilateral involvement is extremely rare.

Aside from the local manifestations and disturbance of the general condition, symptoms of the involvement of special sense organs may occur in rare cases. Albuminuria, glycosuria, and hematuria or hemoglobinuria have been observed, especially the latter symptoms.

Three types of the disease are recognized by Osler, the *mild, moderate,* and *severe types.*

The mild forms are characterized by recurring attacks of syncope. Cyanosis or hyperemia in the fingers and toes, but the process seldom causes necrosis. These attacks are usually much influenced by cold, and often recur in the cold weather. They may last for many years and gradually cease. At times a slight superficial necrosis may occur, but it never becomes severe.

The types of *moderate severity* are characterized by the same chain of symptoms, but the degree of necrosis is greater. The attacks may come on gradually, beginning with numbness or tingling in one or two fingers, accompanied by some stiffness, but no marked pain. The fingers affected gradually change color, getting white and cold, and remain so for an hour or two, then becoming red and warm. Within a day or so a change occurs. The fingers become permanently blue, and the pain becomes more severe. The tip of one finger or the terminal joint of another gets darker and perhaps a few small blebs form. A small area of necrosis is formed in one or two fingers, while the other fingers may return to normal. A line of demarcation forms, and it may be necessary to snip a piece of the bone from the tip. After some months it heals up, the general health of the patient is improved, and recovery takes place. There may be no further attack, or after one or more attacks of moderate severity complete recovery takes place. The *severe types* present a most terrible aspect, and no worse malady exists.

Usually the first symptoms appear in the toes and fingers, with tingling and local syncope. Then the feet become painful and swollen. At the same time the ears may become swollen and red, with the margins blue. The tip of the nose changes color. Within a few days the cyanosis has deepened, the toes black, feet purple, and a zone of bluish-red color appears around the ankle. A black line forms at the margin of the ears, and the tip of the nose becomes black. Two or three toes of each foot may be lost, and a small abrasion of the tip off the nose, with the loss of a small part of an ear.

The patient may recover within three or four months. The following winter the urine becomes bloody, the fingers become stiff, and another attack comes on. The patient suffers the loss of several or more fingers, and the foot or leg has to be amputated because of the gangrene. Recurring attacks cause the loss of either extremity. Hemoglobinuria may be present and the patient may succumb, or the patient may die of coma due to cerebral involvement, or the patient becomes incapacitated and drifts into an almshouse.

Diagnosis.—Although the disease presents a strikingly characteristic picture, the difficulties of diagnosis are often very great. Osler gives a very detailed and exhaustive account of the differential diagnosis. Erythromelalgia and scleroderma are two affections which present many points of similarity.

Many forms of local necrosis have to be distinguished from Raynaud's disease and the more important can be grouped under four headings: organic disease of the nervous system, obliterative arteritis, post-febrile necrosis, and multiple neurotic skin gangrene. Diabetes and nephritis may be combined with Raynaud's disease, and it may be difficult to distinguish gangrene due to the diabetes from Raynaud's disease.

Treatment.—The object of treatment should be to improve the general health of the patient and protect the patient from excitement, and to strengthen the nervous system in general. Sometimes the disease is only cured by removing some source of worry. Neurasthenic and hysterical conditions must be carefully treated. In the mild forms the general measures will be more important than the local measures. When the attacks are influenced by cold and dampness, the patient should keep the hands and feet warm and avoid getting chilled. When attacks occur in the winter a southern or warm climate should be recommended. A change to the seashore or the mountains may be advisable. Hydrotherapeutic treatment may be used to build up the general health.

The mild forms, which do not reach necrosis, are best treated by massage, electricity, and hydrotherapy. Systematic friction of the hands and fingers for half an hour at night and morning helps to give tone to the bloodvessels. During an attack, mental and physical rest should be insisted upon. If the pain is severe, morphine should be given. At first some form of opium can be used, and later, if it cannot be borne by the patient, it should be given by mouth or subcutaneously. Electricity may be used, but care should be taken not to produce too much irritation, thereby increasing the vascular spasm. Galvanism or high frequency currents are best. Faradism should not be used.

The following procedure is recommended by Barlow: "Immerse the extremity of the limb which is the subject of local asphyxia in a large basin containing salt and tepid water. One pole of a constant current battery is placed in contact with the upper part of the limb above the level of the water, and the other pole in the basin, thus converting the salt and water into an electrode.

"As many elements as the patient can comfortably bear should be employed. And the current should be made and broken at frequent intervals so as to get repeated moderate contraction of the limbs. The patient should be instructed to make voluntary movements of the digits while the galvanism is being applied."

Radiant heat baths may be applied, and are found to be satisfactory, both in relieving pain and replacing cyanosis by hyperemia.

In the more severe forms, with necrosis in progress, Osler considers the following indications:

(1) To relieve the pain for which local sedatives may suffice, but often morphine has to be given. Radiant heat may be tried.

(2) To reëstablish the circulation in the asphyxiated area, so as to restrict the progress of the necrosis.

Massage and other local measures are not practical on account of pain and the presence of gangrene. Three or four times a day active hyperemia may be produced by the use of an Esmarch bandage (Cushing). A tourniquet is applied and kept on for a variable period. But as it is so painful, the patient can only stand it for half a minute, and the tourniquet has to be loosened. When the limb is free, the blood surges into it and causes an intense hyperemia of the foot or leg. Osler claims this method gives best results in the severe cases.

(3) Local treatment of the gangrenous part. The separation of the necrotic parts is slow and tedious, and in the case of a digit may take months.

Antiseptic poultices and lotions and surgical aid are as much as can be done. Putting the patient in a warm continuous bath for two or three weeks may be tried, as this helps to ease the pain and assists in the separation of the slough.

Medicines are of little service. Amyl nitrite and nitroglycerin may be useful in some cases, but usually they have no effect.

Erythromelalgia (Weir Mitchell's Disease).—In 1872 Weir Mitchell described a peculiar red neuralgia, to which he gave the name of erythromelalgia, signifying a painful red state of a limb.

The disease is defined as "a chronic disease in which a part or parts of the body, usually one or more of the extremities, suffer with pain, flushing and local fever, made far worse if the parts hang down." It is characterized by pain and redness of the skin at the distal parts of the feet, less often in the hands, or of all four extremities. Whether this is a disease entity, a part of Raynaud's disease, an affection of the spinal cord, an obliterative endarteritis, or one of the forms of peripheral neuritis, in which pain and redness of the extremities may occur, is still a mooted question. Osler thinks that all these conditions should be excluded, and the diagnosis limited to a vasomotor neurosis, which includes a small but definite group of cases. The disease is rare. Osler reports that at the Johns Hopkins Hospital in twenty years only three cases were observed, and he saw only one case in private practice. Oppenheim reports only 2 cases out of 12,000 cases in his clinic. Men are more subject to the disease than women.

Symptoms.—As a rule, pain is the first symptom, which may come on suddenly, or be preceded by fever or general discomfort. It sometimes follows overexertion. Cold and dampness are apparently exciting causes, and the disease often follows freezing. Puberty, menstrual disturbances, and the climacteric are mentioned as predisposing causes. The neuropathic tendency seems to increase the predisposition. The disease may follow an infection, such as rheumatism, gonorrhea, syphilis.

In some cases trauma, a blow, or injury to a limb has preceded the onset of the symptoms.

Cassirer recognizes two types of cases of erythromelalgia. In one the symptoms are localized in a definite territory corresponding to the distribution of a nerve. In the other group the symptoms are distributed over the distal portion of a limb. In one the condition is supposed to be of central and the other of peripheral origin.

The pain may occur in the feet and toes, especially the backs of the great toes, and on the heels, and in the hands and fingers. In some cases the pain may pass to the proximal parts of the limbs. The pulp of the finger is reddened and swollen, the patient complains of a painful feeling of heat, and the temperature of the skin is objectively raised. The bloodvessels pulsate distinctly. Sensibility is not disturbed, as a rule, but there may be slight hyperesthesia or hypoesthesia. The redness, swelling, and pain may vary in intensity. At first the pain may be transient, only occurring in the evening and when the foot is tired. Later it may be stationary or intermittent. The pain may be mild, but usually it is severe and unbearable, and when in the legs the patient will have to use crutches.

Standing, walking, or heat will aggravate the symptoms, while the recumbent position and cold will soothe it.

In *standing* the feet become so red that the skin is dark purple or cyanotic in color. Pain is almost always present, either as an intense burning sensation, or a short stabbing sensation, more or less intermittent in character. Sweating is frequently present and there may be hyperidrosis.

The general health may not suffer, but accessory symptoms are generally present. Headache, vertigo, palpitation, attacks of weakness or fainting may be observed in most cases. Tachycardia frequently occurs. Other trophic disturbances, *e. g.*, atrophy, thickening of the skin, swelling of the bones, changes in the nails may occur.

Numerous other diseases may show erythromelalgia in their course, such as hemiplegia. An *atrophic* condition of the muscles of the extremities may be observed in some cases. The symptoms may be observed in combination with muscular dystrophy, symptoms of cerebral tumor, disease of the cauda equina, and in relation to disease of the spinal cord (disseminated sclerosis in particular), and in some instances with myxedema.

Treatment.—Erythromelalgia is an obstinate chronic affection, very resistant to all forms of treatment. A systematic plan of treatment should be employed.

Rest of the parts relieves the congestion and stops the pain, but the redness may disappear without the pain. Protracted rest for six months may have to be insisted upon. Daily massage, if it can be borne, gently at first, but more vigorous later.

Cold may benefit and some form of hydrotherapy may be tried.

Cold packs, douches, or a local steam bath may be beneficial. In some cases radiant heat is of benefit and should be given a thorough

trial. The method used by Cushing to produce hyperemia, as practised in Raynaud's disease, may be of use. Various forms of electrical treatment have been advised, and may be used to advantage in certain cases. Antipyrine or antifebrin may be given to soothe the pain. Dehio recommends removal of the ulnar or other nerve in some cases, when the pain is limited to a single nerve territory. Section or excision of part of the nerve may be practised, but the results are not always satisfactory.

CHAPTER XI

MENTAL DISEASES OF SOMATIC BUT EXTRANERVOUS ORIGIN (SYMPTOMATIC PSYCHOSES)

By E. E. SOUTHARD, M.D.

Introductory.—The state of the literature concerning the symptomatic psychoses is such that, before their treatment can be considered, something of their classification, genesis, and etiology must be said. The psychoses in question are psychoses thought to be essentially due to certain infectious diseases, certain conditions of exhaustion, certain organic non-nervous diseases, and certain constitutional disorders. *Febrile deliria, infectious deliria, Meynert's amentia,* certain *postinfectious* conditions of transient or permanent mental impairment, are included in the group on clinical grounds; but successive revisions of text-books do not indicate that final subentities have been achieved.

The symptomatology of the group seems on the whole not so varied as the great variety of genesis and etiology would portend. The text-books present a catalogue of causes, invoke a great number of separate atria, and suggest an endless variety of possible brain sites for the operation of all sorts of known and unknown agents. It appears, however, that the clinical variety of the cases falls far short of the genetic and atrial variety. Bonhoeffer, the best-known specialist in the symptomatic psychoses, points out triumphantly that Kraepelin, theoretically claiming the utmost clinical differentiation according to causes, practically has been forced to give up trying to separate the infectious from the exhaustion psychoses. Bonhoeffer believes that so far from the one-to-one correspondence between toxins and entities which Kraepelin maintains, on the contrary, the most varied causes in this group yield a comparatively small gamut of symptom-pictures and no very great variety of course and outcome.

Deliria, epileptiform excitements, dazed and *stuporous conditions, hallucinoses,* and hallucinatory, katatonic, or incoherent *amentia* (in Meynert's sense) are the main clinical forms of the symptomatic psychoses according to Bonhoeffer. Recovery occurs both by crisis and by lysis. Mental weakness with emotional hyperesthesia, amnesia of the type of Korsakow's disease, in severe and fatal cases the phenomena of delirium acutum, meningitis-like phenomena (the so-called meningismus), and occasionally developmental difficulties in children, are conditions which grow out of the acute symptomatic psychoses or follow them.

How does it happen that a Protean etiology and pathogenesis yields so little variety of clinical symptoms, such a comparatively fixed and

definite symptomatology? The Kraepelinian error lodges, according to Bonhoeffer, in failing to remember that the various agents secure their effects through the brain. The symptomatic psychoses are not direct products of various differentiated agents working on normal and, as it were, experimental individuals—Bacillus typhosus producing one sort of effect, Streptococcus another, Plasmodium malariæ a third, and so on. On the other hand the majority of these agents first affect various organs of the body, including the brain itself, and bring about metabolic and autotoxic conditions: The true immediate etiological factor in a typhoid fever psychosis, for example, is not Bacillus typhosus or perhaps any direct product thereof, but on the contrary a secondary unknown agent, proceeding possibly from chemical derangement of the intestinal wall.

As a name for these unknown secondary agents, in this and similar etiological problems (*e. g.*, the derivative toxins from syphilis which we suppose to produce general paresis), I am personally inclined to propose the term *metatoxins*. The metatoxins might work *after* and *by means of* certain primary toxins or agents not in themselves capable of producing the effects in question. The idea of this mechanism was derived from my work with Gay on anaphylaxis. We long held to a dualistic account of the factors in anaphylaxis—chemical differences in the sensitizing and intoxicating factors—but were for some time overborne by the weight of many opponents who claimed a unitary factor. Now that Richet has declared for the dualistic hypothesis, it seems worth while to reinvoke the idea for its suggestiveness in other fields.

Of whatever nature these metatoxins may be and however much or little these phenomena may partake of the nature of anaphylactic sensitization and intoxication, it seems well to bring up the analogy here. Even delirium tremens, Bonhoeffer can somewhat dramatically assert, is not directly due to alcohol. Delirium tremens is, according to Bonhoeffer, due rather to some secondary effect wrought in the body by alcohol. There is in fact little or nothing in common between the mental phenomena of drunkenness and those of delirium tremens. A *tertium quid* has entered to alter the picture.

Upon the problems of treatment for the symptomatic psychoses, this conception has much bearing. Treatment of the primary cause (Bacillus typhosus, Streptococcus, etc.) may well miss the secondary and immediate causes (the hypothetical *metatoxins*). The latter may work after the former have passed. And aside from either, of course, we must consider the operation, duration, and extent of restitution and repair phenomena in the nervous system and other implicated organs. This leads directly to the problem of etiology.

Etiology.—Either for the reasons assigned by Bonhoeffer and above discussed, or as a result of our ignorance both of primary and of secondary causes, the etiology of the symptomatic psychoses forms as yet no guide of great value in treatment. To be sure, Kraepelin states that the treatment of the febrile and infectious deliria corresponds with that of the underlying diseases. Yet, as will be seen below, he

has nothing differential to offer in the treatment, despite his remarkable optimism for the group as a whole.

Typhoid fever, sepsis, the exanthems, rheumatism, malaria, pneumonia (notably associated with alcoholism), influenza, rabies, phthisis (rarely), chorea (as a rule complicated by endocarditis or rheumatism), erysipelas, diphtheria, recurrent fever, chorea, dysentery, acute gastro-enteritis, pertussis, obscure infections (furuncle; oral or intestinal atria) have been more or less prominently mentioned as leading to febrile and infectious deliria.

Complications of the puerperium (often frankly infectious), phthisical hemorrhages, cancer cachexia, gastric ulcer, pernicious and other chronic anemias, polycythemia, may lead to so-called exhaustion-psychoses. These, according to Kraepelin, are little more than syndromes; they do not yet approach the dignity of entities. According to Bonhoeffer, these exhaustion psychoses can hardly be distinguished from the psychoses of the infections.

Heart disease has often been stated to lead to mental disease, mitral insufficiency to depression, aortic disease to excitement, Angstpsychoses in uncompensated valve cases (Wernicke); exaggeration of dyspneic tendency in depressed cases having heart lesions. The diagnostician must exclude phenomena of cerebral arteriosclerosis from falling under the rubric of cardiogenetic psychoses.

Uremia, eclampsia, diabetes, gouty diathesis, Graves' disease, tetany, myxedema, gastro-intestinal auto-intoxication, persistent constipation, liver diseases, Addison's disease, have been charged with producing mental disease of this general group (Bonhoeffer).

Throughout this etiological field there lurks the suspicion of the *tertium quid*, a factor interposed between the somatic disease assigned as cause and the mental disease attributed thereto. Bonhoeffer, of course, regards this *tertium quid* as in the nature of a morbid process produced by the underlying somatic disease either in various organs or, as Bonhoeffer prefers to think, in the brain metabolism itself. This new morbid process is then translated into the mental symptoms, which are much simpler than one might think, by consequence. This is of course not much more than to say that after all the neurons have but a limited gamut of processes through which they may pass as they undergo destruction.

I must insist, however, that by far the majority of these cases fail to exhibit any considerable, or at all events irrecoverable, changes microscopically; whatever accumulations of waste material may be found in the vessel walls are not inconsistent with considerable or even complete restitution of the cells to normality.

I raised the question above of a species of "meta-intoxication," consistent with Bonhoeffer's hypothesis as well as with certain statements of Kraepelin, and proposed to align some of these processes with that of anaphylaxis. In my own studies I have been impressed with the frequency, in insane hospital material, of minor terminal infections with organisms either saprophytic (as ordinarily conceived)

or but mildly pathogenic. I believe that more room should be given to consideration of low-grade sepsis in the pathogenesis of mental disease. The elaborate Danvers data concerning the bacteriology of the blood and the cerebrospinal fluid in the cadavers of mental patients seemed to show (1910) that the cocci bore little or no relation to fatty degeneration of the neurons, whereas organisms of the coli and allied groups bore a very suspicious relation to such diffuse degenerations.

AUTOPSY BACTERIOLOGY OF 100 CASES OF MENTAL DISEASE

100 cases from heart's blood and cerebrospinal fluid.

90 cases with no contaminations in either source.

9 cases, both sterile.

41 cases, both positive.

56 cases heart's blood positive.

67 cases cerebrospinal fluid positive.

14 cases only heart's blood positive.

26 cases only cerebrospinal fluid positive.

90 cases showing Marchi degenerations in the spinal cord. (Three levels examined.)

76 cases showing marked Marchi alterations.

69 cases ("clinically positive") having terminal acute disease or condition over four days in duration (period permitting the production of demonstrable fatty changes in the nervous system).

10 cases chosen as showing the most severe degenerations in white and gray matter of spinal cord; 9 yielded Bacillus coli communis.

18 cases yielding 40 or more colonies of Bacillus coli communis from one or each source, 8 showed extreme degrees of Marchi degeneration, 5 relatively severe changes (intraspinal and intraradicular), and the 5 remaining cases showed considerable intraspinal change.

13 cases showing generalized softening of brain tissue ("general encephalomalacia"); 10 yielded Bacillus coli communis.

Should these autopsy findings obtain a parallel in non-fatal cases, should low-grade septicemia or low-grade sepsis without septicemia but with toxemia, prove a common phenomenon, then the basis of many so-called symptomatic psychoses would be clear. The accompaniment of many *terminal* exhaustions would prove to be the accompaniment of many *non-terminal* exhaustions. The alignment with the *cerebropathia psychica toxæmica* of Korsakow would be striking. A theoretical if not a practical basis for treatment would be afforded.

I have thought it worth while to mention these inchoate ideas because the opportunities for confirmation or disproof of such ideas are not many. The German schools, whether in Munich or elsewhere, have had their attention fixed upon other matters than bacteriology. It has been curious to read unfavorable reviews of the work of L. C. Bruce, of Murthly, because it has been on lines not *à la mode*. To be sure, the extravagant claims of Ford Robertson for certain diphtheroid bacilli have been very properly discounted. The part played by these bacteria is not always the full etiological role to say the tubercle bacillus in tuberculosis. But the role of adjuvant, accomplice, metatoxin, post-anaphylactic intoxicant may well be considered for certain bacteria commonly thought harmless.

Pathogenesis—We must sharply distinguish in neuropathology between the cause and the site of a given disease. Where the cause operates at the site and particularly where the site is itself the demonstrable atrium for the cause the term primary is safe and not misleading, even in the field of mental disease. In the field of mental disorder many well-intentioned authors have clouded the issue by stating that all mental disease is brain disease. This statement, clear as it sounds, is really as Delphic as possible, so long as the brain *parts* which are disordered fail to be specified.

Among the causes of mental disease which may be said to operate at the site and in the atrium (the *brain*, if we may accept the brain as an entity for once) are *concussion, meningitis, tumor, abscess, hemorrhage, vessel plug, encephalitis*. It may be objected that in some instances the atrium for certain causes here mentioned is almost certainly not the seat of operations; but perhaps the objection may be considered academic. For all practical purposes the mental disorders in the above group are internal in their operations, however external in their origins, with respect to the nervous system.

By "operation at the site," let us agree to mean some sort of structural operation with (at least theoretically) demonstrable damage to cells or intercellular elements. Let the damage be either reparable or irreparable and in any degree, the important thing is to distinguish such local tissue injury from the purely physiological operations normal to the part. The latter or purely normal operations of a brain part may also result in the production of signs and symptoms. In the same sense, pyramidal tract disease may permit the *intact remainder* of the nervous system to produce the symptom spasticity of legs: both the

legs and the attached spinomuscular neurons are intrinsically normal in their operations. If we generalize this conception to include the whole nervous system, we perhaps convince ourselves that the whole nervous system may be intrinsically normal in every operation, but extrinsically all the while producing signs and symptoms in abundance (after loss of the thyroid, for example).

Many of the so-called intoxications (metabolic, alcoholic, morphine, cocaine) may possibly work no local damage or but limited amounts of injury to the brain, which acts as well under the circumstances as its evolutionary habits allow. And where damage is demonstrable or with good reason suspected it is not always the injured brain focus which is responsible for the symptoms. The morbid picture may be due rather to the normal or physiological operations of the intact remainder of the brain.

So much premised, it is not difficult to conceive a group of mental diseases the outcome of certain causes whose atria and initial sites are non-nervous. The symptoms of such mental diseases will be presumed to be produced as a rule by the essentially and intrinsically normal operations of a brain or brain parts stimulated by poisons and drug-like substances, from outside the nervous system, or else altered in its reactions by the perversion or withdrawal of substances normally purveyed to the brain from without. If we add to this conception another, viz., that of the vicious circle, we shall have the skeleton of the idea of the symptomatic psychoses, as Bonhoeffer somewhat unhappily calls them.

For convenience purely, we may include instances where diseases, *ordinarily* producing symptomatic psychoses, *exceptionally* operate, by metastasis or otherwise, to produce destructive lesions of the nervous system (hemorrhages in nerve tissues in typhoid fever, meningitis in erysipelas, encephalitis due to pyogenic subinfection in scarlet fever, abscess and meningitis in influenza).

One word as to the site of the operations underlying deliria, epileptiform excitement, amentia and kindred stuporous conditions, and hallucinoses. By hypothesis we are dealing with *operations of the relatively,* if not in some cases absolutely, *intact brain.* The acute cell change of Nissl, neuroglia proliferation with satellitosis and perivascular-cell accumulations, increase of perivascular pigment, commonly found, to say nothing of the Alzheimer type of change, as found not merely in katatonia but in severe somatic disease—these changes have not been studied as yet sufficiently *in their cortical distribution,* so that clinical correlations are largely lacking. Three cases examined by me in 1908, in a study with H. W. Mitchell of insanity arising in the sixth and seventh decades of life, showed: Case 7, inflammatory rheumatism at fifty-five, followed by persecutory delusions and auditory hallucinosis continuous until death at seventy-five; more marked nerve-cell pigment in motor areas (contractures, twenty years); Case 10, 55, cardiorenal, with disorientation, amnesia, visual and auditory hallucinations, feebleness and restlessness, frontal gliosis and stratigraphic differences in

pigmentation (excess in external pyramid layer); Case 11, 70, cardio-renal, with disorientation and amnesia for recent events, variable neuroglia-cell pigmentation and absent nerve-cell pigmentation. The variability of these residual phenomena indicates either that they are intercurrent and have nothing to do with the effects of somatic disease (on the basis that the nervous system was left relatively intact by the somatic disease), or that the somatic disease has left its traces irregularly. On the whole I am inclined, on these and other grounds, to consider the phenomena of the symptomatic psychoses as less localizable (in the sense of structural injury) than most other psychoses excepting manic-depressive insanity. The near approach of the phenomena to those of frankly universal intoxication (alcohol), to those of multiple brain contusions, and to those of heightened intracranial blood pressure (particularly in the meningismus group), seems to portend lasting difficulties in localization. Delirium and amentia are difficult to describe in physiological terms; hallucinosis, however surely we localize it theoretically, is practically as a rule beyond our range. Epileptiform movements, occasional katatoniform phenomena, and the mental complications of chorea promise more to the localizer.

By consequence the surgeon has little to guide him in this group. There must now and again appear cases of the meningismus stamp in which decompression will be either indicated or attempted; perhaps the temporal route would recommend itself on the stray chance of confusion in diagnosis with brain abscess.

Treatment.—Bearings of Special Etiology upon Treatment.—One gains the impression that Bonhoeffer (theoretically) and Kraepelin (practically) trust little to particular etiology, in the group of infectious deliria, for the guidance of treatment. Bonhoeffer introduces nineteen lines upon the treatment of the infectious psychoses by stating that the treatment and elimination of the underlying disease is also the treatment for the psychic symptoms. Kraepelin makes the same statement concerning the treatment of febrile deliria as well as of the infectious deliria which he distinguishes therefrom (non-febrile infectious deliria and deliria dependent not on fever changes but on toxic changes in the nervous system).

I have collected here those few indications which I have been able to gather concerning treatment of special forms of disease in this group.

1. Typhoid Fever Psychoses.—We here distinguish the so-called *initial deliria* from those of the fastigium and later. Kraepelin suggests that the initial deliria of typhoid fever are due to typhoid toxin. I should suppose, however, that the initial bacteriemia of this disease might—in the absence of definite knowledge—serve to explain these deliria better, particularly if we expand the hypothesis to include the idea of unusually heavy doses of the bacteria dying in the meninges. But whether we deal with a soluble toxin or an endotoxin, we might think of methods of toxin "elimination." Of these methods:

(*a*) *External hydrotherapy* (as in the stock Brand treatment) is thought to favor elimination of toxins by indirectly affecting the kidneys through heart and vessels.

(*b*) *Internal Hydrotherapy.* Water should be given freely by mouth (every half hour is the rule in some American hospitals).

(*c*) *Rectal irrigations* are perhaps not advisable, except occasionally, on the score of causing increased peristalsis.

(*d*) *Salt solution enemas,* two or three times in the day, might be considered in certain cases (continuous rectal irrigation would hardly be practicable in typhoid fever psychoses).

(*e*) *Hypodermoclysis.*

(*f*) *Intravenous injections* of salt solution are extreme and rare methods in such cases.

(*g*) *Water by stomach-tube* is advocated by Cole for certain cases of ordinary typhoid fever (500 to 750 c.c. two or three times a day), and this method might be found to have some advantages in a few cases of typhoid fever psychoses.

The claim is made for the Brand cold-bath treatment that it greatly benefits the nervous symptoms found in virtually all cases of typhoid fever. Some writers place the nervous effect before the antipyretic effect in importance. Cole observes that "in (general hospital) wards where (Brand) hydrotherapy is carried out as a routine measure, patients exhibiting the so-called typhoid state are rare." It would seem fairly certain that the tub baths would be superior to affusions of cold water in the typhoid fever psychoses.

The initial delirium of typhoid fever argues a severe course. It is said that over one-half of such cases are fatal.

It may be that some cases of initial delirium are really cases of mild or even severe meningitis due to B. typhosus. Lumbar puncture may here be effective, repeated, according to present opinion, every second day.

For the motor excitement which sometimes complicates initial typhoid deliria, probably the baths or packs will serve best, unless by chance they overstimulate.

As for the simple *febrile deliria,* which may occur at the end of the first week of typhoid fever or later, the worst feature is probably the occasional severe outbreaks of motor excitement, best treated as above. The prognosis of the febrile deliria and of other psychotic complications of typhoid fever is much better than that of the initial deliria.

Cases of *collapse delirium* are less common in typhoid fever than in erysipelas, influenza, and other diseases. In such cases and in cases of old persons without fever or with but little fever, the Brand baths or cold affusions might need replacement with warm baths.

The *dietary* in the later psychoses of typhoid fever should be more liberal than in uncomplicated cases, or at all events a more liberal diet should be resumed earlier.

2. Streptococcus Infections.—7 to 8.5 per cent. of erysipelas cases are stated to show psychoses. Especially cephalic erysipelas is

thought to tend to psychosis. According to Bonhoeffer there is nothing particularly characteristic about these psychoses.

Kraepelin mentions *collapse delirium* as one of the conditions into which erysipelas may pass suddenly (as also in pneumonia and influenza).

3. ACUTE ARTICULAR RHEUMATISM.—Psychotic symptoms are looked for about the beginning of the second week; there are some defervescent cases.

Associated with rheumatism and endocarditis is *chorea;* from puberty to twenty-four (Kleist) chorea psychoses may develop, in which katatonic symptoms may well lead to confusion in diagnosis between chorea and dementia præcox. Rest in bed in a separate room with a special nurse will be desirable in certain cases on account of the excitement, distractibility, and emotionality of the patients. In severe cases scopolamine-morphine is recommended by Bonhoeffer, who comments that hyoscine yields sensations that reduce the taking of food and may even increase the delirium. Kraepelin remarks on the value of the prolonged warm bath. Others prefer warm packs. Some of the "elimination" methods mentioned above (under typhoid fever psychoses) are applicable. Food is so essential that the stomach-tube may be resorted to early.

4. EXANTHEMS.—Of these the most frequent to produce mental symptoms are scarlet fever and variola. Personally I am inclined to believe that the mental phenomena here are due to secondary complications, as a rule coccal in origin.

In scarlet fever we have to deal with encephalitic complications at defervescence and in desquamation. The scarlatinal nephritis gives a uremic or eclamptic tendency to the symptoms.

Variola yields initial deliria (third to fifth day) and later psychoses in secondary fever. Tendency to violence and suicide is mentioned for the initial deliria.

5. MALARIA AND RELAPSING FEVER.—Some of the most intense cerebral congestions ever observed have been in "pernicious" malaria. Epileptiform excitements form the characteristic feature of the acute psychoses in malaria and relapsing fever. Quinine is of service in the malarial psychoses, which are probably due to the packing of the small bloodvessels with plasmodia.

6. PNEUMONIA.—Pneumonia of upper lobes seems more prone to give rise to psychoses. It is probable that pneumonia colors the picture of delirium tremens in the majority of cases.

General Treatment.—General treatment may be considered from an institutional aspect as well as from hygienic, nursing, and medical points of view.

Institutional Treatment.—With the building of psychiatric clinics and the development of mental wards in general hospitals, it is probable that this group of cases will get better treatment in future. Psychiatric clinics, to be of particular value in this direction, must be constructed on the broadest lines and equipped for general medical work as well

as for special purposes. Kraepelin believes, and with good ground, that the hydrotherapeutic facilities of the modern psychiatric clinic will greatly aid in the treatment of many cases of the group. Particularly the collapse deliria will benefit by enlightened management.

Nevertheless it is practically true that cases of delirium *with fever* will for many years to come be sent to general hospitals in considerable numbers. I found that something like 8 per cent. of the deaths at the Boston City Hospital in a period of years had been in cases overtly recognized as mental. Of course not a few of these were cases of delirium tremens, which however presents (with its pneumonic complications) therapeutic problems akin to those of the symptomatic psychoses. It does not appear that the nurses in general hospitals have a chance to secure proper training to meet mental cases. Therefore arrangements like those of Pavilion F in Albany, a mental ward managed under the same roof with a larger general hospital, should be initiated in other places; enough recommendation for this policy would consist in the better training of nurses alone. But the effect on the *morale* of the medical community is equally important. Where such arrangements as those of Pavilion F cannot be made, arrangements permitting general hospital nurses to receive training with mental cases should be made.

The chief complication in treating patients of this group at home is the lack of facilities for carrying out hydrotherapeutic treatment. Packs, however, can be administered without great difficulty.

Medical Treatment.—Cases with *fever* are treated by ice-cap, and short cool baths or packs (beware of heart complications, in which digitalis, strophanthus, or caffeine may be indicated). Fever cases are attended with so much more loss of energy, *caeterus paribus*, than other types of cases that measures for maintaining *nutrition* are urgent; early resort is had to the stomach-tube. *Water* in sufficient quantity is a desideratum (see above under typhoid fever psychoses).

Artipyretics are commonly contraindicated.

Cases *without fever* or not markedly febrile may receive warm baths with ice-cap.

To combat *excitement*, Kraepelin recommends alcohol or paraldehyde, perhaps added to the food.

Collapse Delirium.—The prognosis is good if only the patient can be kept from dying out of hand. Kraepelin places such patients at once in the prolonged warm baths, which quiets them and frequently induces them to eat. If they will not eat Kraepelin proceeds at once to tube-feeding, or, if this be inadvisable, to injection of salt solution. Alcohol or paraldehyde may be added to the food for quieting purposes; or, on the contrary, caffeine, strong coffee, camphor, or even strophanthus are mentioned by Kraepelin.

Amentia.—Bromides, veronal, paraldehyde are called into service when bed or prolonged bath treatment are not wholly successful. It does not appear that the non-febrile infectious deliria can be separated from the exhaustion cases, at all events practically. The future, how-

ever, should show therapeutic differences, not only between the infectious and exhaustion groups, but also within those groups. Particularly that group of obscure infections merits attention in which cocci or Bacillus coli are found in blood or cerebrospinal fluid. The severer of these cases appear clinically as *delirium acutum*. According to Kraepelin the meninges in such cases actually show mononuclear infiltration, as well as well-defined changes within the nerve tissues. Although, accordingly, we might agree with Bonhoeffer that diagnostically these cases cannot be differentiated *on psychical grounds*, we must not feel that the absence of clear diagnostic entities entails necessarily the hopelessness of specialized therapeutics. But this is in the bosom of the future; the results depend upon fresh clinico-pathological insight and new work by immunologists and chemists.

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CHAPTER XII

THE MANIC-DEPRESSIVE PSYCHOSES AND THEIR TREATMENT

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INTRODUCTION

The morbid mental states which go to make up the so-called manic-depressive psychoses are so varied in their clinical manifestations, differ so widely in their course and outcome, present on the one hand such close affinities to normal affect reactions, and stand on the other in so near relation with certain other psychotic states, that a thorough-going consideration of the group from any viewpoint would be constantly in danger of diffusing itself over almost the whole field of abnormal psychology.

The commonest psychic variation among the mentally sound, and among the earliest in the development of a psychosis, is an aberrant *state of feeling*—an unaccustomed euphoria or dysphoria, or more correctly, inasmuch as these terms refer especially to the composite bodily feelings, a *hyperthymia* or *dysthymia*, more usually the latter. Indeed, even considerable deviations in the thymopsyche are in observation so banal that they are all too frequently reckoned on this side the elastic boundary line between health and disease.

Greek Medicine.—It excites no wonder, therefore, that we find among the earliest accounts of mental illness, from Hippocrates onward, descriptions which indicate a differentiation of the commoner types of functional or recoverable psychoses, particularly of the two antithetic states, which, following the Hippocratic teaching, seventy-five generations have agreed to call mania and melancholia. These names, it must be added, have passed through many uses since first they were applied, and have been attached at different times to the greatest variety of abnormal mental states, many of which were not at all differentiated during the Grecian era, and are today included in entirely different categories. Neither will anyone assume that the words mania and melancholia had for the Hippocratic diagnostician anything like the definiteness of meaning which, as expressive of the primary affect psychoses alone, they have acquired in modern psychiatry.

The history of the rational treatment of mental disease begins then with the Grecian school. Especially in the works of Aretaeus and Coelius Aurelianus, who were among the last representatives of the

Hippocratic line, are set forth in considerable detail therapeutic indications which without great modification might serve today as satisfactory programs in the management of such conditions as we have here to consider. Accordingly it is not inappropriate to preface the present discussion with some notion of what Greek ideas and ideals of treatment actually were. For this we can do no better than to turn to the pages of Coelius Aurelianus where he deals with the management of states of excitement.

The excited patient, he writes, should be placed in a room with somewhat subdued light, mild temperature, and away from all disturbing noises. There should be no pictures on the walls, and air should be admitted by elevated openings. By preference the patient's room should be on the ground floor, to avoid the danger of a leap from a high window. The bed may be secured to the floor, and so placed that the patient cannot see the door, and is not, therefore, constantly distracted by what is passing. If the excitement is of such degree that only a bed of straw can be used, it should be carefully selected and prepared, and all harsh substances painstakingly removed, in order that it may not offend or wound, when the patient chances to lie down.

If abrasions of the skin have been produced, oleaginous and emollient fomentations are to be applied, the patient's movements being restrained such time as is needful by carefully enswathing the body with material of soft texture.

Frequent visits, particularly on the part of strangers, should be forbidden.

The attendants must be rigorously enjoined to repress the outbreaks of patients in such manner as not to antagonize them by displaying too much spirit, nor on the other hand by too much laxness, to allow enlargement to their extravagances. Their faults should not be permitted therefore to pass unnoticed; and one may use as occasion requires, either calculating indulgence or mild reproof, setting forth the advantage of better conduct. If a patient becomes violent and must be subdued, several attendants should be at hand, and by approaching as if to give a rub down, may overmaster him before he is aware and without needlessly irritating him.

When the excitement is such that even the sight of others augments it, in very rare instances restraint may be used; but with the greatest precaution, without violence, carefully protecting the joints, and employing only bands of soft material, for repressive means, if injudiciously used, augment or even cause excitement in place of allaying it.

If there is someone in authority who commands the patient's awe and respect, he should not be seen too often. Frequent interviews tend to jeopardize such an ascendency. But in case of need when nurses are unable to control their charges, recourse may be had to the fear or respect inspired by such authority.

Nourishment should be given very cautiously at first, and only

in the lightest and most easily digested forms. If the evacuations are not regular, enemata must not be neglected.

With special pains one should note the character of the delirium, in order to turn to account the possible salutary influences of moral impressions, diverting thoughts, or welcome news.

If there be persistent wakefulness, a swing-bed may be tried; or one may resort to the continuous sound of falling water, the monotone of which often induces sleep. Warm sponges applied to the lids relieve the feeling of heaviness due to prolonged watching, and the soothing effect may seem to penetrate even to the brain itself.

As the excitement declines, consciousness becomes clearer and sleep returns, nourishment should be increased and more varied; and as the patient recovers his strength he may be taken for walks and given other physical exercise, always useful for the preservation of health, but of particular benefit at such a time as this.

Mental exercise may also be tried, the patient being given to read texts which contain errors or defects in style which he is to recognize and correct. Reading should be limited to things which are simple and readily understood. Conversations, questions and answers, may be variously employed, being careful, however, not to invite fatigue; for mental occupation of this sort or the effort involved in difficult reading may give rise to as great lassitude as immoderate physical exertion. Even the theatre may prove serviceable in averting threatened despondency or groundless fears.

At a more advanced period in the treatment, patients are to be occupied with more formal and serious discussions in order to carry their minds onward to their full capacity. This may be accomplished by lectures of studied character suited to the needs and scope of the patients' minds. Among the auditors should be only friends of the latter. After such mental exercises should come the promenade, or perhaps a séance of massage.

With the illiterate, on the other hand, discourse must be suited to their station. With the tiller of the soil one discusses agriculture; with the sailor, navigation. But if the patient turns out to be a man totally ignorant, one can only engage his mind with the most general or rudimentary subjects—series of numbers for example. Mind-food may nevertheless be found for every type, and it must always be supplied in such a way as to create an agreeable impression.

When the patient has reached a stage where there is no likelihood of new symptoms arising, and he is less dangerously impressionable, a change of scene may be counselled. Trips by land and water, varied distractions and mental diversions, agreeable conversation, and the indulgence of affection, may do excellent service. Ennui and the spirit of gloom are only too ready to fasten upon those who have already been their victims; and if healthy sane men can fall suddenly into a morbid state, under the influence of grief, how much more is this result to be feared in those who are convalescent or just recovered, and who are still living, as it were, in the atmosphere of their disease.

Such is the spirit of the Greek text; and we may wisely carry it with us as we turn now to consider the more modern aspects of the affect psychoses and their treatment.

Paradigm of the Affect Psychoses.—The paradigm of the manic-depressive psychoses is the double or cyclic type, which advances through four phases:

(1) *Prodromal period* of a few days, more often weeks, sometimes months, characterized by nervous restlessness, emotional irritability, and minor associative and volitional disturbances. Commonly the essential symptoms of the psychosis are writ small in the prodromal stage, which thus constitutes a sort of prologue to the morbid drama which is to follow.

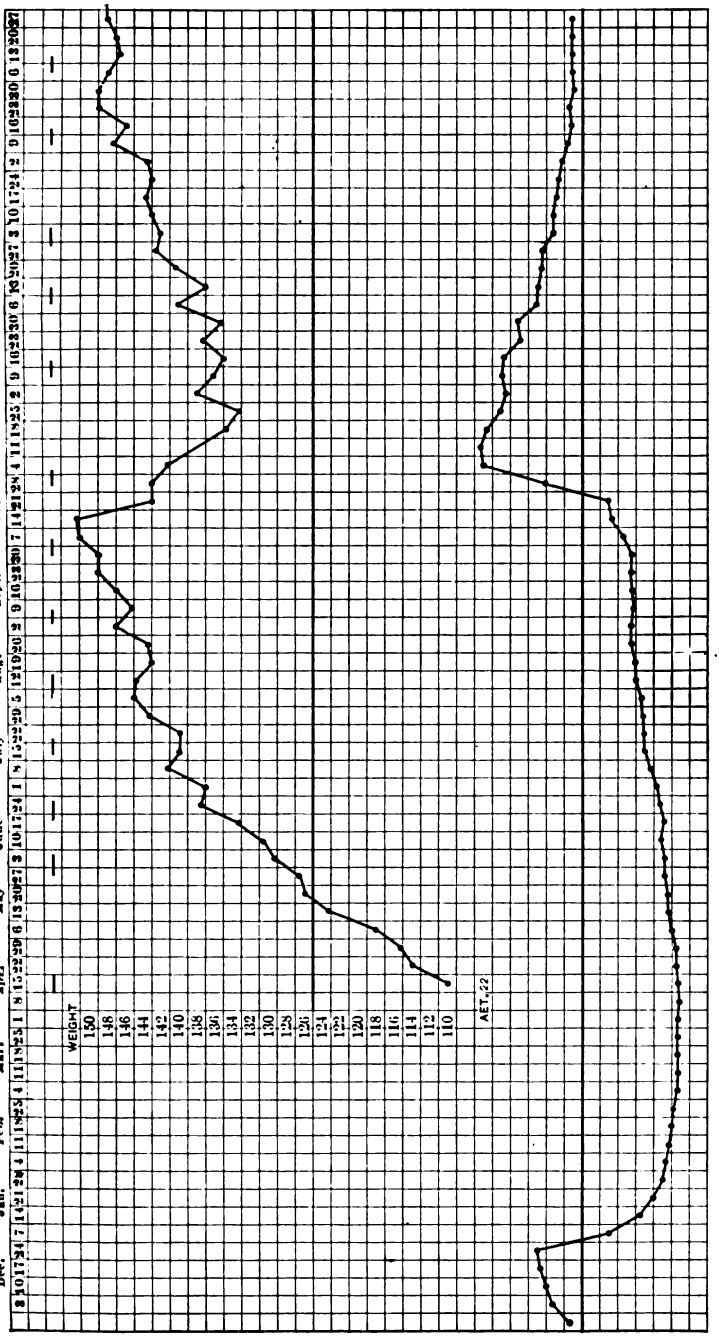
(2) *First phase* of the psychosis proper, gradually, sometimes abruptly, making itself apparent, either depression, stupor, or excitement in frank form (most often depression in first attack), and extending usually over several months.

(3) *Transition* period of a few hours, days, or weeks, during which the characteristic manifestations of the first phase, *diminuendo*, are being replaced by those of the second phase, *crescendo*. For a brief period it may appear that an exact balance has been struck and the patient seems approximately normal. Oftener, however, the process is more condensed and various interesting mixtures of symptoms result.

(4) *Second phase* of the psychosis proper, antithetic to the first, either excitement or depression in frank form, continuing several months and ending in recovery.

Course.—There is a tendency for the psychosis to recur after intervals of health varying from a few months to many years. Occasionally in subsequent attacks a "photographically similar," but usually a varying course, is observed in which the phases differ in arrangement, duration, or intensity. In very many cases the first attack consists of a single phase, most frequently depression; and the same phase may several times recur, before eventually the complete cycle establishes itself. In a few instances, apparently new symptoms come to the front during each attack.

Obviously the paradigm is fairly elastic, but we must amplify still further. Strictly, every case runs its individual course to its own individual conclusion; but for convenience we may distinguish beside the paradigm several symptomatic types which, however different their course or prognosis, are determined by common primary affect factors. The discussion of the kinship of these several forms or of the integrity of the assumed disease entity of which all members of the affect group should be merely varied or partial expressions would here be manifestly out of place. This side of the matter can be referred to only in its point of contact with the questions of prognosis and in its bearing upon those of treatment and prophylaxis. With a summary mention, therefore, of these symptomatic types, we shall pass directly to the general therapeutic considerations.



Typical curve (lower) of a paradigm case with alternating phases (states of excitement above, depression below the normal line). A moderate prodromal excitability, by the family hardly looked upon as pathological, is succeeded by a deep continuous affect depression, in which, however, there is a protracted and very gradual mitigation of symptoms as shown by the slow ascent of the curve. The transition stage is short and a high degree of excitement develops within a fortnight, in turn gradually subsiding. The weight curve (upper) covers only the period under treatment. The initial descending limb is therefore lacking. The rise in the curve corresponds, but by anticipation and in exaggerated terms, with the improvement ascent in the mental. The rapid drop corresponds with the severest phase of excitement; the subsequent rise, with convalescence. In this case a considerable physical transformation coincided with the psychosis, as indicated by the raised normal weight level, originally at 125. In the further post-convalescence readjustment a moderate decline is, however, to be expected. As shown by the dashes at the top, menstrual periods occurred with fair regularity.

Special Types.—(*a*) **Primarily Reactive Types.**—Isolated attacks of uncomplicated manic excitement, affect depression, or stupor, ending in recovery without an alternate phase or in some instances after a mild transitory suggestive contrast-reaction, by no means always easy definitely to constate. Isolated depressive attacks are much oftener observed than either of the other forms and include many cases in which actual circumstances of life and environment have determined a physiologic emotion with its psychomotor accompaniments, but which soon transgresses the physiologic bounds either in duration or intensity, and therefore merits the name of "reactive depression." Such reactive cases commonly present a convergent or cumulative etiology, and are among the most favorable from the prognostic viewpoint, especially when the study of the pathogenesis suggests not only direct but practicable prophylactic indications.

(*b*) **Frankly Constitutional Types.**—Cases in which positive deviations of sufficient degree to be termed pathologic are either permanent or more or less regularly periodic. Here are to be reckoned the so-called constitutional excitements and depressions, cases of moderate habitual hyper- or hypothymia, which may be fairly constant or undergo considerable fluctuations, and which are punctuated in the severer forms by recurring aggravations of the ground-symptoms, constituting definite manic or depressive outbreaks. The ground-symptoms may be so mild as to escape uncritical observation, and only during exacerbations does the psychosis attract attention. But many cases called simple recurrent excitement or depression discover on close scrutiny the hyper- or hyporeaction as an abiding factor. With these also must be included the cyclothymias which are set together of the combined phases of constitutional excitement and depression, and which through life continue to toss the patient between crest and valley in an endless succession of affect waves.

Another constitutional variant, the gravest of all considered in the manic-depressive group, is the persistently recurrent or periodic form which results in a slowly progressive deterioration. The attacks are numerous, and while from the earlier ones recovery may seem complete, a mild mental reduction eventually asserts itself in the narrowing of interests, defect of initiative and of the higher critical faculties, and general emotional levelling. Here we have to do, not as in the more usual manic-depressive cases with episodic storms which sweep past and leave the heavens blue, but rather with a more elemental disturbance through which at length the sky becomes permanently overcast. Quite often these cases present evidence of early arteriosclerosis or other organic brain disease, or give a history of head trauma.

(*c*) **Atypical Forms.**—These comprise the so-called mixed type expressing various combinations and antitheses of expansive and depressive symptom-complexes. With these may also be mentioned certain parapsychotic affect states described as paranoid depression and paranoid excitement.

(*d*) **Involutional Modifications.**—Here we are dealing with predominatingly depressive conditions which appear for the first time in later life. Chief among them is the form known as melancholia vera, a psychosis sufficiently distinct in its clinique to warrant separate consideration, but which nevertheless in its pathogenic affinities with the manic-depressive type may with equal reason be looked upon as an epochal variant of the latter. Indeed, instances of transitional depression are occasionally observed in which the passage from a typical recurrent affect depression to the involutional form may be clearly followed. In this category we may further mention the somewhat less frequent cases of chronic excitement which select by preference the involutional period for their manifestation.

The Manic-depressive Concept.—In consulting current treatises on the manic-depressive psychosis, one is struck by their therapeutic pessimism. This is, however, a comprehensible sequence in the evolutionary history of the disease, which by virtue of the two basic facts—(*a*) that affect psychoses show a conspicuous tendency to recurrence, and (*b*) that periodic or recurrent psychoses are predominatingly of the affect type—culminated in the brilliant clinical synthesis of Falret, Baillarger, and Kraepelin.

The boundaries of this disease-concept have been extending until it includes, for those who accept it in its widest application, practically all cases in which a disturbance of the affect is the primary and essential manifestation; reckoning in also the more or less specific melancholia of the involutional period and many cases of fundamentally stuporous type, together with certain paranoid syndromes, and hallucinatory-confusional (amentia-like) states. Even the reservoir of dementia præcox, which during the earlier ascendency of that disease-concept was overfilled at the expense of the affect psychoses, is now giving back some of its borrowed waters into manic-depressive channels. Kraepelin, the modern sponsor of the affect synthesis, exerts a directing influence upon this tendency, and is now inclined to place many cases previously classed as dementia præcox or amentia in the manic-depressive group.

Together with this extension of the group-confines has grown up the doctrine of recurrence, which in these latter days is tending to become more and more extreme; so that the visitation of a manic or depressive attack upon a person previously well, now almost spontaneously provokes a commiserating headshake which would foredoom the victim to a life-long, even though intermittent, association with his malady. The universal tendency of the disciple to out-dogmatize the master is seen nowhere more clearly than here, and we run the risk of quite losing sight of the fact that the ultimate outlook of the affect case may not of necessity be unfavorable.

A hopeful viewpoint is not encouraged, however, by the therapeutic considerations to be found in most of the treatises. They usually begin apologetically with the observation that by reason of the nature of the disease, treatment is necessarily reduced to symptomatic measures. A side-light on the situation is furnished by the following comparison.

In treatises by current authorities on seven of the commoner physical diseases picked at random, of the aggregate pages of text, 23 per cent. are devoted to questions of treatment; in the treatises of four leading authorities on the manic-depressive psychosis, one of the commonest of mental diseases, of the total pages of text, 7 per cent. alone are given up to treatment.

Whatever one's viewpoint, these figures assuredly declare an unfortunate and regrettable disproportion, and foster an attitude of resigned helplessness in the handling of mental cases which is not wholly justifiable, and which, moreover, is often not unnaturally found reflected in the consciousness of the patients themselves, certainly not to their advantage.

General Therapeutic Premises.—In dealing with the affect psychoses we must start with four general premises.

(*a*) The attack must run a definite clinical course characterized by more or less clearly expressed stages, just as we observe in the various types of physical disease.

(*b*) Each case follows essentially an individual course. Different patients may present the widest variations, both in general symptomatology and in the nature, duration, and succession of phases. In a word, the personal equation plays a far more conspicuous role in mental than in physical disease.

(*c*) Whereas the course of a recoverable physical illness may be reckoned in days, weeks, or possibly months; that of the psychosis must be reckoned in months, perhaps even years.

(*d*) Just as in recoverable cases of physical illness, so in the affect psychoses, the disease process tends to be self-limiting; and spontaneous recoveries occur with or without treatment, with favorable or in spite of unfavorable conditions.

These points of similarity and difference between psychotic and somatic disease are merely fundamental expressions of the two aspects of the psychophysical parallel. It is a universal observation that the obvious points are the ones most easily neglected; but the self-evident facts above referred to are of great moment in contributing to the *understanding attitude* with which it is imperative that the affect case be approached and managed. Nothing is commoner for example than the expectation, encouraged often unconsciously perhaps by the attending physician, that the mental patient will recover within a few weeks—six weeks seems to be a popular term—after coming under treatment. It may require much finesse to avoid spreading an initial gloom over all concerned by forecasting an inevitably long course of illness, and at the same time prepare against later disappointment when weeks have stretched themselves out into months and the end is not yet.

General Therapeutic Objects.—On the basis of these general premises, what in the next place are the objects aimed at in dealing with the manic-depressive case? They may be fairly categorically stated. First of all both the individual and society must be safeguarded

during the term of illness. Not only the dangers to life and limb, but possible loss or destruction of property, improvident or harmful social or business adventures, and excesses of all sorts, must be prevented.

Next must be guaranteed so far as possible all those conditions which make for the comfort of the patient, which contribute in any way to his physical or mental well-being. Here are involved questions of suitable environment, of nutrition and the support of strength, of forestalling needless waste of energy, and of the direct amelioration of painful symptoms by either episodic or systematic measures.

Thirdly, there should be kept in view the possible favorable modification of the course of the psychosis, or its actual abridgment, not only by removing obstacles from the path and making general conditions coöperate with the restorative tendencies of nature, but particularly by specific individual mental treatment.

And finally, our interest in the patient must reach far beyond the time limits of the attack, and every possible agency must be employed to fortify him against the future; for, unfortunately, in many cases it is less difficult to get well than to stay well.

To sum up, our therapeutic efforts are on the one hand directed against the current psychosis in which we attempt to guide the patient toward convalescence in the time-honored manner, *tute, celere et jucunde;* and on the other, include such prophylactic measures as may lessen the probability of subsequent attacks.

Differential Symptom Groups.—With these various objects in view, it is at once evident that every patient must be approached analytically in order to differentiate between symptom groups which may be etiologically or pathogenetically distinct, and which therefore require separate consideration in the rational management of the case.

In each initial case we must distinguish three possible symptom groups.

(1) **Symptoms of the Psychosis Proper.**—These include all the characteristic manifestations which taken together give to the disease its individuality, and which constitute the pathologic deviation from the patient's normal or habitual reaction-mode in health.

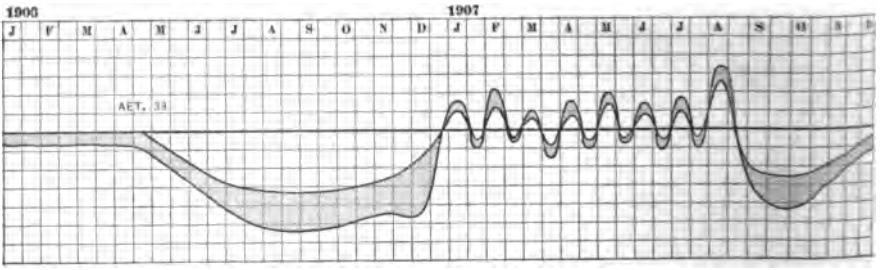
(2) **Constitutional Symptoms.**—The constitutional symptoms are the most widely divergent both in kind and degree. They include not alone the ground-symptoms of the strictly constitutional affect types (constitutional depression, constitutional excitement, cyclothymia), which are, of course, part and parcel of the psychotic exacerbation itself. Beside these there is the host of minor psychoneurotic or degenerative mental stigmata; the so-called neurasthenic and hypochondriac traits, and algophilias; the morbid survivals of certain childhood characteristics, and all the signs of an inharmonious or one-sided mental unfolding; together with the myriads of individually trifling, but none the less imperfect, inconsequent, superfluous, or even noxious reaction-habits expressive of bad training or lack of self-discipline.

All these phenomena together make up the *psychotic potential* which in varying form and degree is the familiar of every human mind. Manic-

depressive cases differ, however, from the generality of humanity by a higher average psychotic potential in this sense. Their inherent psychopathic trends are likely to be either more numerous or more insistent.

The constitutional symptoms may, therefore, for convenience be regarded as independent of the psychosis proper, and yet they are a complicating factor in the clinical picture and intimately interact with the affective symptoms themselves. In patients of low psychotic potential the constitutional symptoms may seem hardly to contribute to the symptomatology or to influence in any way the course of the disease; while in others more severely handicapped, the underlying constitutional factors show through the psychosis, so to say, lend it color, or may so transform or obscure it as to suggest a combined or atypical case, and even at times lead to very considerable diagnostic difficulties. In some patients apparently latent constitutional symptoms first come actively to the surface and in magnified type under the favoring influence of the acute illness, and may long survive in subinvoluted form after the psychosis itself has subsided. It is obviously important from the therapeutic viewpoint to take careful differential account of the features here in question as will be indicated more in detail in the later course of the discussion.

FIG. 41



Curve of a cyclic case accompanied by exaggerated constitutional (hysteroid) symptoms which at certain stages almost completely masked the psychosis proper. The inner curve represents the phases of depression and excitement; the outer curve the psychopathic coefficient. The constitutional symptoms, as indicated by the shaded portion of the curve, being characteristic of or at least latent in the patient's normal state, are at first present alone. With the development of the psychosis they become much more conspicuous but not necessarily proportionately. Note, *e. g.*, the episodic maximum of the psychopathic coefficient in December, 1906, as the depressive affect phase is waning. Between January and August, 1907, it is impossible to construct an accurate curve, as the manifestations of excitement and depression not only alternated but often overlapped; and in conjunction with the particolored constitutional symptoms, offered at various times the most divergent and bizarre clinical pictures. Duration of psychosis proper, approximately one and one-half years.

(3) **Artificial Symptoms.**—These represent errors in the technique of handling the case, arising often among the lay entourage before the patient comes under trained supervision. Chief among these errors is the tendency to equivocal dealing or downright deception which is so lamentably often practised upon patients, even by their nearest of kin, when they are assumed to have become intractable or irrespon-

sible; and the resultant artefact of doubt, fear, hostility or general suspiciousness may long continue as a thorn in consciousness or become even one of the determining features in the psychosis.

Minor artificial symptoms, it may be remarked, will indeed almost inevitably occur even under the most conscientious management, as the slightest lapse of tact is often sufficient to evoke them.

By convenient license we may include with the artificial symptoms certain acquired abnormal characteristics which are the outgrowth of unhealthy family associations. Where there is lack of harmony, or one-sided or exaggerated sentiment, or, on the other hand, positive friction or antagonism, one or both parties are likely to suffer character changes therefrom, and chiefly the weaker or more unfortunate, the same who of the two is the more probable future candidate for a psychosis. The commonest of these unfavorable relationships are between mother and daughter and between husband and wife, and it is oftenest in the daughter and wife respectively that we must later look for the consequent artificial reaction which is perhaps to feature a mental attack. To cite a single every-day example, many of the so-called delusions of jealousy are notoriously artefacts, *cum causa*, either wholly or in part.

THE INITIAL CASE

Plan of Treatment.—From the foregoing considerations of general premises, therapeutic objects, and symptomatic differentiation, we are now ready to take a stand in regard to the beginning psychosis or the early period of its observation, and to formulate a plan of procedure; at the same time we are aware of the long, carefully detailed and individual program which must be followed if the double therapeutic goal is to be approached or happily attained.

Environment.—The first question which presents is that of environment, including both persons and place. It must be considered before everything else from the standpoint of safety, and thereafter with a view to securing optimum conditions for recovery.

Danger of Suicide.—In depressive cases the possibility of self-injury or suicide must in this connection invariably be reckoned with. To be sure there are depressive conditions which may be non-suicidal, and even phases during thanatophilic melancholias when the danger is reduced to a minimum, as in severely inhibited or stuporous states. Nevertheless the critical times and circumstances are so uncertain, or at least so difficult for casual determination, and impulses of dissimulation are so often met with, that no ground of compromise can conscientiously be taken. There is but one safe assumption—*every case of depression is potentially suicidal.* The first indication therefore is uninterrupted supervision, and not only that, but trained supervision. It is obvious that unskilful watching and dogging a patient, not only fails of any good effect, but may actually aggravate the morbid condition and precipitate disaster. The depressive case should be night

and day in the hands of competent and carefully instructed nurses. In many instances the necessary supervision can be secured only in the special hospital and the patient should be placed there without delay. In others it may be possible and more desirable in some part of the home or in a cottage given over to the purpose, to extemporize the essential hospital conditions.

Particularly in the agitated depressions, the most disturbing of all types to their environment, and which require not only an unremitting watch, but often symptomatic measures hardly available outside the hospital, internement is usually the only alternative.

The question of the manner and means of safeguarding, like all other questions of treatment must of course be individually answered in each case. Being concerned here only with the cardinal initial indications in their general application, the more detailed consideration of the subject of suicide is deferred to a later page.

Stuporous cases allow a wider latitude of choice of environment, except the depressive stupors which insofar as safety measures are concerned must be classed with the other forms of depression. The intense psychomotor inhibitions, or cyclic stupors, may often be cared for without the hospital, provided adequate nursing can be assured.

With patients in excitement the question of hospital treatment or outside care may depend largely upon the intensity of the psychosis. Hypomanic cases of mild degree are often satisfactorily treated as out-patients. Indeed they do well with a minimum restriction to their liberties. The quality of responsibility must here be the determining factor. Some patients with fairly outspoken symptoms may yet have sufficient self-mastery to be allowed their freedom, while others with much less conspicuous outward signs are quite unfit to hold their place as social units.

It is precisely these latter cases of what might not inaptly be called plausible madness, that sometimes offer the most perplexing problems in the business, social, and medicolegal complications in which they are so frequently involved. Confinement in these cases may be indicated primarily as a protective measure in view of the constant menace not only to their own interests but to those of others in their every-day associations.

In higher degrees of excitement in which destructive, violent, and aggressive tendencies develop, the necessity for sequestration becomes of course more patent.

Personal Associations.—After the spatial aspect of the environment question has been disposed of, the personal side demands attention; and in any case severe enough to require restriction of liberty, it should be possible to enforce the same rules regarding personal environment whether the patient be in hospital, at home or elsewhere. It is peculiarly in the depressive cases that this point must be insisted upon.

Maniacal patients with their centrifugal inclinations may exhibit a plus of social affinities, and their personal associations should be regulated empirically, having in mind two main objects: (*a*) to keep

from their presence so far as possible all persons toward whom they have unpleasant feelings, particularly members of the family whom they may hold responsible for their trouble or who have been instrumental in the restriction of their freedom, and (*b*) to cut down all social intercourse in proportion as it tends to aggravate the symptoms of excitement.

Depressive cases on the other hand are egocentric and spontaneously withdraw themselves from the communion of their fellows, nor should visits or conversation be forced upon them. Some degree of isolation is nearly always indicated and should be increased in proportion as the patient's powers of mental assimilation and self-adaptability diminish.

Organized Mental Control. — In all manic-depressive patients whose actions are to be regulated, the whole subject of their personal relations may be comprehended under two headings:

(*a*) **Contralized and Complete Control.**—The director of the case must have in hand the entire ordering of the patient's conduct. There must be no cross-currents in the management and treatment. No man can serve two masters; and in the mind of the mental invalid who may appeal from the doctor to the nurse, from the nurse to the family, and from the family back to the doctor again, only the seeds of confusion are sown, and he is at a loss to know on whom to depend. An intelligent, kind, tactful, firm directive control emanating from a single source is requisite in hastening the time when the patient may reassume his temporarily relinquished self-responsibility.

(*b*) **Entire Uniformity of Attitude.** — There should be an entire uniformity of attitude on the part of all who are brought into contact with the case. This is partly implied in what has just been said but is of broader scope. The mental patient whether willingly or unwillingly is a dependent creature, dependent not only in the range of activities he is permitted, but also for the answers to his questions, the solution of his perplexities, the satisfying of his doubts, the allaying of his fears, the softening of his displeasure, the encouragement in his troubles. In all these things as well as in the directive control there must be harmony and uniformity. Nothing is more important in the whole therapeutic program, for its direct bearing upon the patient's mental state and its progressive changes. And to this end the nurse or nurses in charge must be sufficiently familiar with the individual nature of the disease and thoroughly acquainted with the projected outline of mental control. They must be forewarned of the changes expected or desired, of emergencies which may arise; and should be able through specific instruction and ready alertness, to deal with the multiform situations in which the diseased mind finds itself. All the means so used should thoroughly harmonize with and smoothly supplement those of the director of the case; and so far as possible the plan should be extended to cover in detail all relations of all persons who may in any manner be associated with the patient. The latter should inevitably feel that all the influences, from whatever sources,

by which he is surrounded, are compact in a well-ordered harmonious beneficent system, which he may safely obey, respect, and appeal to.

Family Relations and Reactions.—In cases of home-treatment, the family not infrequently presents as difficult a problem as the patient himself, and in meeting the situation a certain touch of military strictness may not be out of place. It should be thoroughly understood at the outset that the nurses must not be embarrassed in carrying out the scheme of control and treatment. The patient's apartment should be exclusively under their jurisdiction, and their orders to admit or exclude all or any members of the family or other persons should be unquestioningly respected. Only where such conditions can be guaranteed should home-treatment be recommended, and provided also that other serious contraindications do not exist.

But in a great many cases such contraindications do exist, not only in various painful associations and memories, possibly of accidental nature, which the patient himself would gladly escape, but more especially in the guise of the morbid family relationships above alluded to, *e. g.*, the mother-daughter or the husband-wife reaction. In one case, the neuropathic daughter, there may be an exaggerated attachment and dependence; in another, the antipathic wife, a contrary feeling of misunderstanding, hostility, or repulsion. In either case strict separation may be indicated, requiring removal of the patient from home and home associations, and possibly also cutting off for a shorter or longer period all communication with the other party to the pathologic relationship.

The sum of the matter is that in the management of a mental case, the patient himself is only part of the problem, sometimes in fact the least difficult part. The family and domestic environment make up the other part. And when, as is only too often the case, in addition to the circumstances already referred to which result in various foreign or artificial symptoms, we find a definite psychopathic milieu in the more specific sense, within which the patient has been living, under the burden of hereditary influences or in the midst of mutually reactive morbid familial syndromes—the almost indefinitely widening scope of restorative or ameliorating indications becomes still more apparent.

In the social commonwealth no individual is an isolated or independent creature. Each is in some manner an expression of the times. Nor is the mental patient an isolated phenomenon within the more restricted confines of the family—a tare sown by chance in a garden where otherwise only roses bloom. He presents merely an individual type of growth from a common matrix, and any efforts to remedy his condition must reach far enough to include the milieu as well.

A recovered manic-depressive patient with insight once pertinently remarked: "Could you doctors live for a while in the families whence later come your patients, you would better understand their illness and its causes, and know more readily what to do for them." And to this may be added the equally judicial remark of a gentleman whose wife was undergoing treatment: "I see that it is not the patient alone,

but really the whole family which must be placed under treatment," a judgment which in one application or another is literally true in every case.

Travel Pseudotherapy.—A word just here regarding the suggestion so often made at the beginning of an attack, especially a first attack, that the patient be taken on a trip in the hope that the change, diversion, etc., will put him right. From the frequency of this procedure it would almost seem that an excursion of some sort were looked upon as a panacea for the psychoses. In the class of cases we are considering, the trip-treatment rarely does the slightest good. Far more often on the contrary it aggravates or precipitates symptoms, as a few moments' consideration of the psychology of the affect psychoses would lead one to expect. It may be accepted therefore as a rule, which, if there be exceptions, is only proved by them, that in the early stage of illness, all excursions, visits to pleasure or recreation resorts, attempts at bustling diversion or sight-seeing, are positively contraindicated. During convalescence, the question requires quite a different answer, for the recreation trip may then as often do good, as harm at the beginning of the disease.

DEPRESSIVE STATES

Stages of the Paradigm Case.—It will now, perhaps, be most suitable, having disposed of the initial questions of environment, to outline the principal therapeutic indications as they might successively arise in the course of a cyclic paradigm case such as was set as a pattern at the head of this discussion. The psychosis opens with the phase of affect depression, and attention both to the physical and to the mental side must go ever hand in hand.

Initial Bed Treatment.—We shall err on the right side, if at all, by assuming that the condition demands rest and bed treatment. In the passive state of the simple depressions this is fairly easy to carry through, and if the patient is accessible and communicative, coöperative relations may be established almost from the first.

Bearing in mind then the three possible types of symptoms, (1) artificial, (2) psychotic proper, and (3) constitutional, we endeavor to correct them in the order mentioned.

First Mental Adjustments.—The effort must be made first of all to reconcile the patient to the changed conditions. By the very nature of the case he suffers a more or less marked allopsychic disorientation. He sees all the world through blue glasses, and his gloomy outlook is perhaps reënforced by the knowledge or belief that he has not been fairly and openly dealt with by members of his family or whoever had first to do with his case. It may or may not be possible to reconcile these artificial discrepancies, but the trial may at least be made; and especially is the utmost caution to be used from the first contact of physician or nurse with the patient, onward, that no new artificial symptoms shall be called forth. To prevent them utterly is well-nigh

impossible, and startling lessons may be learned from almost any patient convalescent from a depressive attack if he be asked to recall his impressions of the earlier stages of his illness with reference to points of treatment or details in the attitude of those intrusted with his care.

That an individual morbidly depressed should misunderstand and misinterpret is of course inevitable. Indeed in this very circumstance lies one of the criteria of the severity of the disease; and with full knowledge of the fact, in our daily dealing with the case, we are still prone by unconsidered word or act even the most trifling, to contribute unconsciously to the depressive interpretations which hold the patient in thrall. In his helplessness and doubt he is likely to feel that there is no human being whom he can trust; and the moment the impression finally gains a foothold in his consciousness that there is even one on whom he can depend, may mark the turning-point in his illness, at which the upward course is begun.

Strict truthfulness must characterize all our commerce with the depressive case. He dwells in a world apart, and it is only by this means that we may perchance gain entrance to that world and have part in influencing his return.

It is superfluous to remark that the patient's world of shadows is to him the real one, more real by far than the sunnier one he has for the time being taken leave of. His painful beliefs and feelings are not to him matter for mirth or light comment, and a trifling jest at his expense may render even a partially coöperative patient inaccessible, and perhaps undo the work of days or weeks. On the other hand, the most positive assurance that the painful thoughts will pass, may be of no avail. In any event the patient must be taken seriously. He must be given patient hearing. Nor must he by any chance suspect that the court is prejudiced—at least if the court can help it—or feel that he is looked upon with the patronizing sympathy so naturally expressed for one in delusion.

In the more deeply depressed and uncommunicative cases it may for a long time be quite impossible to strike any ground of approach whatever. All efforts to establish a rapport not only fail, but seem to have a positively harmful effect. The very presence of some one in the room increases the evidence of mental distress. This is observed chiefly in patients with either overmastering fears or ideas of self-abasement. In dealing with such cases the question "To do or not to do" must be constantly asked and answered, for we must aim not only to do the right thing at the right time, but to avoid doing the wrong thing at all times; and there may well be occasions when to do nothing is to do the right thing.

Isolation.—Patients of this type should usually be strictly isolated, no one entering their room but the doctor and nurse. Even their presence may be at first advantageously limited, experimenting cautiously with the briefest visits and the fewest words, reducing bodily care to the simplest routine, omitting all superfluous attentions

and manipulations, and preserving about the patient an atmosphere of uniformity and calm. If then one can utter a sentence or two of calculated encouragement which shall reflect an appreciation of the patient's subjective state, and which at the same time is not too widely at variance with what he holds to be possible, and if these sentences be pronounced slowly (for the depressed patient is often unable to follow the usual rate of speech), with calm assurance, not neglecting even the vocal intonation, and if they be variously repeated day after day, their intended effect may at length be perceived, like that of dropping water upon the rock.

Any definite tendency to a progressive increase of symptoms must be the sign to cut the visit short. There are cases unfortunately in which insofar as mental influence is concerned, we seem forced for the time being to an unqualifiedly expectant attitude, allowing the sheer passage of time to accomplish that which we are powerless to bring about by more rapid methods—powerless at least with available conditions and means, for even approximately ideal conditions are seldom attainable.

The agitated forms of depression offer obvious difficulties to bed treatment. If left to themselves patients of this class are constantly active, tossing about in bed, or more often wandering restlessly and aimlessly about the room or making efforts to escape. If unchecked, these tendencies result sooner or later in the added symptoms of exhaustion. Such patients moreover are prone to inflict bodily self-injury of all grades, from the pulling out of hair, biting and chewing the nails and finger-ends, and the production of abrasions in various places by rubbing and picking, to actual suicidal attempts.

Control of Motor Restlessness.—Agitated cases may require the constant attendance of a nurse. She should try by gentle means to keep the patient in bed, although compromising a little at first by not restricting his movements too much. After some days even a considerably agitated case may in this way become habituated to the bed and seek less often to leave it.

The aim is to reduce movement as far as possible without aggravating other symptoms, or producing artefacts of fear or hostility. And this effort to check the movements of an agitated case is not merely a peripherally symptomatic measure; nor is it moreover only to prevent a needless waste of energy. It is a rational attempt to influence retroactively the morbid state of mind.

Of the three components of the psyche—feelings, thoughts, and acts —the first two may be in the given case quite beyond our reach. It is only with the end-product of mental function, so to speak, namely, the act, that we may be able directly to deal. But the act is the expression of the thoughts and feelings, and while in an agitated depression we may have to do with a so-called mixed condition, the painful state of feeling and thinking is more or less reflected in the motor phenomena. Furthermore a thought or emotion is not complete until it has found its adequate expression. The peripheral embodiment finishes, stamps,

and gives it reality. A systematic attempt, therefore, to limit or inhibit such acts or movements as are the peripheral expression of painful mental states, may eventually succeed in mitigating by so much the morbid mental state. In fact, patients are sometimes painfully conscious of the peripheral expression in itself, and suffer reflex from the motor restlessness which they cannot control. In such states the James-Lange theory often finds direct application.

Moreover, in clouded depressive states with the aimless wandering tendency, the patient may be said both mentally and bodily to be constantly travelling without ever getting anywhere; and this very circumstance—the restless journeying with no goal in sight, as exemplified in the story of the wandering Jew, the painful mental state in which thought struggles laboriously on, but the *terminus ad quem* is ever lacking—only results in a vicious circle where both confusion and restlessness may be indefinitely increased until utter exhaustion supervenes.

At the same time all methods of checking motor phenomena must be very carefully tried, lest by too severe or abrupt restraining means the sense of painful tension be harmfully increased.

In a limited number of cases the crib-bed will be found a sufficient check to the wandering impulse.

The Warm Bath.—Ordinarily, if the patient cannot be kept at rest by the simpler methods referred to, the warm or tepid bath may next be tried.

Precautions.—In some deeply apprehensive and self-accusatory cases tub-treatment is injurious or dangerous for manifest reasons, while as a sedative to the restlessness associated with vaguer mental distress it may exhibit considerable efficacy. A depressed case should never be placed in the bath, unless continuous and careful supervision can be assured to guard against suicidal attempts or accidental drowning. The latter danger may be lessened by supporting the patient upon a slack-sheet stretched across the tub and by thrusting the head through an inflated ring-cushion, which thus serves both as pillow and life-preserver. The pulse must be particularly watched while the patient is in the tub, for warning of threatened collapse symptoms which occasionally unexpectedly occur. If cardiovascular lesions exist special precautions are demanded. With any definite show of weakness he must at once be removed to bed and stimulation applied as may be indicated. Especially should the pulse be noted as the patient grows quieter under the prolonged influence of the warm bath in order to make sure that the apparently sedative effect is really the desired one and not the danger signal of progressive weakness. As a rule a patient should not long be left in the tub after restlessness has fairly subsided, but may be returned as often as necessary provided untoward indications do not arise. It is perhaps needless to add that the strictest attention must be given to keeping the warm bath at an even body temperature, except to say that there are on record cases in which fatal consequences have followed the neglect of this obvious requirement.

The ice-cap, when possible to apply it, may also be tried for its sedative effect, upon either tub or bed cases.

The combination air-light-water-bath has been warmly praised and is a luxury to be commended whenever with favorable weather conditions a tub with continuous flow can be conveniently arranged in a suitable garden enclosure.

The Sun Bath.—In some depressive cases the sun bath is of singular efficacy and should quite generally be tried unless temperature conditions offer a contraindication. An occasional patient takes kindly to the method almost at once and is agreeably sensible of the inspiriting effect of the sun's direct rays. More often, however, the tendency in depressive states is to court darkness, the patient if allowed his own way keeping his window shades drawn. This tendency must be tactfully combated. Indeed, it is desirable wherever the needful precautions can be taken to keep depressive bed cases in the open, on porches or under trees, provided other indications, such as the need of seclusion, are not thereby violated.

The wet pack, warm or cold, according to individual needs, or sometimes the dry pack, may advantageously be tried, although in most cases of agitated depression these means are likely to be of limited service. As a sleep promoter in the quieter cases the wet pack may succeed, although failing to subdue more aggravated states of motor restlessness.

Question of Mechanical Restraint.—The question of mechanical restraint is one on which there still appears to be considerable difference of opinion. Notwithstanding the fact that enlightened physicians of the Hippocratic era pointed out the dangers and unhappy results of the harsher measures of restraint, from that day to this these measures, in one form or another, have been notoriously abused. All will doubtless agree that mechanical control should be reduced to the minimum, but it may be questioned whether those "no-restraint" enthusiasts who would abolish it utterly do not go a step too far. The no-restraint movement, like the temperance propaganda, has had a preëminently salutary effect; but prohibition in either case (if complete elimination is implied) is hardly to be considered within the range of the desirable or possible. The no-restraint teaching has been in its essence a crusade for the reform of a crying abuse. But all reforms tend in their nature to leap at once from the extreme of the abuse they would correct to the opposite one. Only later is the golden mean adopted.

As a rule artificial control will be used only in emergencies or as a last resort. It may become necessary for example in transporting a patient, but it is deeply to be regretted that it should ever be called into service merely as a compromisory substitute for more suitable measures. Nevertheless, the rule against mechanical restraint has exceptions like all others, and it may be set down as a fact that if restraint is called for at all and the gentle manual efforts of the nurse do not suffice, it is far better to resort frankly to the mechanical appliance than by surrounding the patient with numerous attendants to

subject him to a continued collective muscular coercion. The inanimate canvas neither provokes nor retaliates, and cannot be persuaded.

Restraint Indications.—In the employment of restraint the mildest form compatible with the end desired should self evidently be used. Depressive cases of confusional or stuporous type in which there is marked depletion in physical strength, and a mild restlessness or wandering impulse tends to further exhaustion, will quite often yield to the slight form of restraint supplied by a "rest-jacket" (an easy waistcoat-like garment closing at the back with laces, which can then be secured around the head-board of the bed) more readily than to any other means and are thereby saved the further waste of physical energy.

Another depressive type in which some equivalent of the rest-jacket may be found serviceable is that in which the patient is painfully conscious of his motor agitation and may even have the feeling of trying in vain to subdue it. Such patients sometimes experience actual relief in the mild curbing of purposeless activity which the restraint affords them. The psychology of this situation has already been referred to.

In other depressive states beside the two here in mind, stronger repressive appliances will chiefly be resorted to only as compromise measures. They need not therefore be discussed in this article, which is intended principally to deal only with the methods of choice.

Somatic Conditions.—The object of all the procedures so far considered is to secure initial rest in the depressive conditions. At the same time the somatic functions demand attention, principally with respect to (*a*) general hygiene, (*b*) nutrition, (*c*) excretions, (*d*) sleep.

Enterological.—Nearly all cases of depression show digestive disturbances of some degree. Almost without exception constipation is present. Often it has been neglected for a considerable time, if it be not in fact a constitutional trait, as is frequently enough the case. Indeed, in many instances this symptom may assumably be responsible for a whole train of secondary nutritional irregularities which may be at least contributing factors in the evolution of the psychosis. Following the lead of Pilcz considerable work has been done on the association of intestinal putrefaction with the periodic psychoses. An excess of indican has been found in the urine during phases of excitement, but disappearing in the depressive state and in the clear intervals. Sometimes a strict parallelism is observed, an indicanuria regularly preceding by some hours the onset of an excited attack. Occasionally also the psychomotor symptoms go before and the indican increase appears only later. While, therefore, it would seem most probable that the gastrointestinal disturbances, instead of standing in primary causal relationship to the pathologic mental phases, simply represent the somatic side of a general disorder centrally determined, the metabolic irregularities should receive no less careful attention.

Some form of intestinal therapy is always necessary and should be consistently maintained. Artificial milk preparations made with the

lactic acid bacillus, have been used to control intestinal fermentation, in the hope of favorably influencing the mental symptoms. In cases of inertia where regular habit formation is to be accomplished, an extended cascara course may be serviceable, using the fluid extract and beginning with the empirically sufficient dose, which is repeated several days, then diminishing by a drop a day for a week, repeating the same dose several days and then resuming the reduction in several similar stages.

Nutrition.—The question of nourishment is often a serious one. An attempt at overfeeding, as is sometimes practised in the neuroses, has occasionally been suggested, but it will usually be found that a regime which places as little burden as possible on the digestive apparatus will be the most advantageous. To this end a diet with a minimum of meats will be chosen. Where mastication is inadequate, soft diet is indicated, and if feeding becomes especially difficult it may be well to resort to a two-hour-interval liquid regimen. Of this, milk and eggs will, as a rule, constitute the major part. In severer cases tube-feeding may be necessary, and with proper precautions should be unhesitatingly employed before the nutritional level, as indicated by the weight curve, with weekly or semiweekly observations, has been allowed markedly to decline. In extreme cases the patient may be kept up on tube-feeding for many months. The object of sparing the metabolic machinery all unnecessary labor must always be remembered, and an exclusive milk diet will often be found the best, giving the milk frequently, in small amounts (except of course in tube cases, where not less than two or more than four feedings, according to conditions, should be given in twenty-four hours), sometimes diluted with aërated water. The increased tissue-thirst must be met with an abundance of water, to which, indeed, the patient may exhibit as great an aversion as to food. Each case on liquid diet should receive daily from two to three liters of fluid, at least half of which is milk. Normal saline enemata may sometimes also be profitably employed, or, where there is marked physical depletion, the saline infusion. For the general cleansing of the colon, a copious high enema once a week or oftener is serviceable in nearly all cases, unless manipulative procedures of the sort are directly contraindicated by the patient's mental state.

The failure of depressive patients to take food and drink depends upon a considerable variety of factors, and it is not usually difficult to discover which are in play in a given case. A simple anorexia is treated with the customary dietary or occasionally tonic measures. If inhibition or inertia be chiefly to blame and the patient swallows food when placed in the mouth, the indications are of course clear. But more often the failure to eat spontaneously is less a neglect of food than a definite resistiveness. The delusions upon which this resistiveness is based may be referential, persecutory, auto-accusatory, or somato-psychic. One patient refuses food because he believes himself too poor to pay for it. If it is left in his room he will perhaps take it by stealth. Another feels that he is unworthy to eat, or that

he is taking the food from the mouths of his betters. Another infers various dire consequences of his eating which are to befall others or himself. Another is sure that through his food the attempt will be made to poison him. If the nurse first tastes the food the patient will sometimes follow suit. There may be gustatory hallucinations which suggest noxious ingredients. In such case it should be especially seen to that the oral cavity is kept clean and sweet. Another patient with intestinal sluggishness, believes that he has no stools and that therefore he should not eat, that the food merely decomposes and remains within or that it is mysteriously transformed into various foreign substances (*e. g.*, wood, glass), which cannot then be got rid of. Finally a patient now and then makes a direct suicidal attempt by the starvation method. Whatever the motive, the attempt should be made to deal with it individually before resorting to the tube.

Hypnotics and Sedatives.—Sleep-disorders are so varied that hypnotic indications, like most others, conform to no general rule. It must not be expected that the patient can be assured a normal sleep average even with hypnotics, and this fact need not be discouraging. Neither is an occasional night of complete insomnia necessarily an indication for drugs. These should manifestly be given as sparingly as possible. With conscientious attention to other hypnotic measures, such as the wet pack, warm bath, ice-cap, hot drinks (milk, cocoa), a glass or two of beer, head massage, combing the hair, stroking the lids, the faint breeze upon the face of a small electric-fan distantly placed, or other sleep-suggesting means, drugs may in many cases be almost entirely foregone. Usually, however, a patient should not be allowed to pass more than two nights without sleeping, and if medicine becomes necessary, one of the following may be tried: veronal, gr. v-xv; trional, gr. x-xx; paraldehyde, ʒi-ij; amylene hydrate, ʒj; or as a last resort, chloral hydrate, gr. x-xx (*cave*, cardiovascular disease), with or without bromide or opium. In mild cases of restless depression, bromide, gr. xv-xxx, given in hot milk occasionally at night, may prove sufficient. Sometimes better results follow a regular bromide course in small, frequently repeated doses, either alone or combined with small amounts of opium (gr. ¼-j). In resistive cases where oral administration is impossible, one may be forced sometimes to have recourse to the hypodermic of morphine, particularly in exaggerated states of anxiety. Possibly even in occasional instances where the subduing of motor excitement and promoting sleep are urgently indicated, an eighth or quarter of morphine may be combined with $\frac{1}{150}$ to $\frac{1}{100}$ of hyoscine hydrobromate. The latter drug should, however, be avoided as much as possible. It is in the emergencies of out-practice that it may most often be required. Of all the hypnotics, the most universally serviceable are probably veronal and paraldehyde. The former in ten-grain doses is usually quite effectual, and without unpleasant after-effects. It is sometimes useful also as a sedative in the anxious, agitated states, being given in small frequently repeated doses (gr. iii-v) and continuing over a number of days, if necessary two or three

weeks. The taste of paraldehyde is objectionable, but for quick and safe results it may be confidently used, even up to 3-dram doses.

Massage.—Massage may be indicated in depressive bed patients who are accessible and coöperative. It is naturally contraindicated in many confusional, stuporous, agitated, apprehensive, and micromanic states, in which, as a rule, any manipulative measures only aggravate symptoms. When allowed, massage must be carefully suited to the individual patient. Abdominal massage especially may be useful in combatting the intestinal inertia.

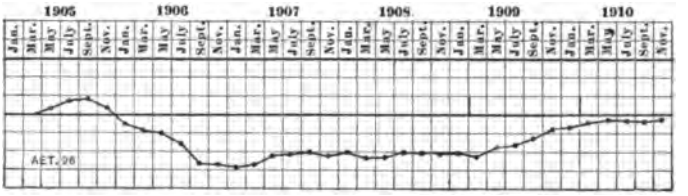
Pain.—As first pointed out by Diehl, pain is one of the most common accompaniments of the manic-depressive psychosis. It occurs chiefly in the depressive phase and may have the most varied localization, although headache is by far the most frequent form. Head pains are complained of especially among the prodromal and early symptoms of the psychosis and during convalescence. In mild depressive cases they may also be noted throughout the course, but they tend to withdraw to the background with the severer development of the disease in which anguish of mind gradually replaces physical pain. It is often very difficult to determine the exact character of the depressive headache. In many cases it appears to be not a pain at all, although the patient originally reports it as such, but rather a feeling of dulness, heaviness, fulness, or oppression. Sometimes one even gets the impression that it is the evidence of an unconscious attempt on the part of the patient to objectify his state of mind. Not infrequently the complaint of head pains, backaches, etc., would appear to be more or less exaggerated through desire for sympathy or as part of the depressive delusional tendency. It is to be remembered also that in markedly constitutional types, recurrent headaches, even severe migrainous attacks, may be merely habitual symptoms and by no means peculiar to the period of the psychosis.

Pilcz, Wagner, Neisser, and others have drawn attention to the frequent association of constitutional periodic cases with focal brain lesions, and especially with early arteriosclerosis. The psychosis of violently contrasting affect states and therefore widely varying degrees of arterial tension appears to offer favorable conditions for the precocious development of cardiovascular disease; while the latter on the other hand is, in many instances, merely one of the hereditary degenerative stigmata which may be found in the severe recurrent psychoses. In these cases the nitrites have a beneficial effect not only upon the headaches but often upon the feeling of anxiety and the motor restlessness as well. The warm bath may also serve the purpose of lowering a high blood pressure and relieving the associated symptoms.

Analgesics.—As a rule one must be guarded in giving analgesics for the usual types of pain in depressive states. At least one must be able to satisfy himself somewhat as to the quality of the paresthesia and resort to drugs only after giving a fair trial to other means, such as rubbing, massage, the ice-cap, dry cupping, galvanization (weak current, anode over brain or cord). Codeine, recommended by Dheur at the

For all these reasons we begin by reducing external stimuli to a minimum, accomplishing this by isolation if necessary, insuring quiet surroundings, perhaps cutting off letters and visits, forestalling painful referential ideas so readily derived from the headlines of newspapers, shielding the patient to the utmost from the multiplicity of sights and sounds which make up the common world of experience—in short, by reducing his manner of life to the simplest terms and in every way avoiding adding burdens to the already ill-functioning psyche. The most trifling questions of choice, proposed by a nurse through kindness, as for example whether the patient would prefer milk or cocoa, may cause him an agony to decide. No demands should therefore at first be made upon his associative activities, and the whole routine management in all its details should be carried forward smoothly, systematically, and without apparent effort, to the end that if possible the patient may become, however vaguely, sensible that those desirable things lacking in himself, yet exist in his environment, whence perchance he may reacquire them.

FIG. 42



Mental curve of a cyclic case of unusually severe constitutional type, notable for the long duration of the depressive phase. The convalescent period between the vertical lines is represented in detail in Fig. 43, p. 567.

But the depressed and inhibited case is not only incompetent in his relational adjustments to the outside world. More than all he is insufficient unto himself. He falls short of the feel of self-direction, and the overwhelming sense of self-responsibility which he is quite unable to meet may be the sorest burden he has to bear. Here again the treatment attitude is a protective one—attempting the relief of old burdens and sparing new ones. Insofar as the patient is at all accessible, the idea of utter relinquishment of responsibility may be instilled, even to include if necessary all the minor acts of daily life. A state of reconciled passivity is the objective point from which we may thereafter gradually develop again the more normal reaction mode.

Sooner or later the patient begins to show increasing mental capacity. There is less spontaneous peripheral evidence of psychic pain. Sensory stimuli are less distressing and more readily assimilable. The tendency to illusion subsides. Relative motor quiet ensues. Even glimmers of interest or curiosity may indicate that the egocentric force is being neutralized in the patient's mind.

Psychic Reconstruction.—The reconstruction process is now possible, and may be cautiously encouraged. It implies on the one hand the

the rim, but as a rule if the necessary local arrangements are available, the open tub is much to be preferred. Indeed it is one of the special advantages of the water treatment that it does not forcibly restrict movement. It offers an environmental medium at once protective and sedative. It tends to lower the blood pressure, guarantees a fairly even temperature at the surface of the body, and supplies material upon which the patient may expend his surplus energy without doing damage to himself or others or his surroundings.

In manic excitement one of the commonest symptoms is a general hyperesthesia. All sensory impressions produce exaggerated representations in consciousness which in turn give rise to exaggerated motor reactions. Thus a patient may strip himself because of the irritation produced by the mere contact with his clothes, as well as from the associated sense of confinement or limitation of motion which his expansive humor cannot endure. In such a state the yielding aqueous medium with its comfortable warmth through which all tactile impressions are equalized is manifestly the ideal one. By this means also are obviated all those distressing accompaniments of mania gravis (uncleanness, destructiveness, etc.) which in the old days made it such a dread disease and clothed its very name with horror.

Precautions.—There are several points of caution to be borne in mind in connection with the bath treatment. The possibility of collapse in cardiovascular cases with great motor excitement has already been mentioned. The tendency in the continuous tub to maceration of the skin may be met by an initial anointing of the surface of the body, particularly the extremities, with vaseline. Any skin disease present must receive specific attention, as the bath affords an excellent means for the spread of an infection over the body, *e. g.*, furunculosis. The conjunctivæ must also be carefully watched. In some instances chronic middle-ear troubles have been aggravated by tub treatment. The occurrence of a menstrual period does not contraindicate the continuation of the bath.

Sometimes the wet pack is found serviceable in alternation with the bath, and between tub and pack the patient may, if necessary, spend the whole period of his excited phase. As compared with the bath, however, the duration of the pack should be short, not exceeding one to three hours. The milder forms of motor unrest may derive special benefit from the warm tub sufficiently prolonged. Often indeed the quieting effect is gratifyingly prompt.

Modes of Regulating Surplus Energy.—The situation confronting us in the maniacal case is for practical purposes that of a superabundance of energy which demands outlet. It is as if the patient were a prodigal possessed of a single overmastering impulse, to dissipate the fortune of his strength, regardless of consequences to himself or others and without the check of either fatigue or pain.

There are three ways to meet this situation.

(1) To render the excess of psychomotor activity innocuous, not only to the environment, but especially to the patient himself; to diminish

its outward effect and thereby weaken its tendency to self-perpetuation; to provide a sedative medium in which it must expend itself. Such is the function of *hydrotherapy* as above indicated.

(2) To attempt the direction of the excess of energy in specified channels as in health, to the end that the psychomotor activity as it undergoes a change in kind by conforming more and more to normal types, will by reason of that very fact and *pari passu* tend to conform to the normal type in degree as well. This is the function of *ergotherapy* to be next considered.

(3) To check the expression of the surplus energy by sheer overmatching of strength, whether by the hand of man or with mechanical appliances. This is essentially *pseudotherapy*, although with possible exceptions, which will be noted.

If in cases of depression the patient's condition must be closely watched in order to utilize the earliest safe moment for occupation, this indication is even clearer in cases of excitement. Here the tendency to expend energy is paramount. No permissible means can check it. The only question is, In what manner shall the expenditure be allowed, and how may its increase be avoided? The latter object is furthered by keeping excited cases as much as possible apart. Maniacal activity is contagious, and the tendency to mimicry and "warming up" under almost any stimulus may require a degree of isolation. Where special hyperesthesias are conspicuous, *e. g.*, photophobia, hyperacusia, hyperosmia, the indications are obvious. The singing of birds in a tree outside the window or the perfume from a vase of flowers will in some instances prove a source of irritation and possibly increased psychomotor activity. One patient was much annoyed by the odor of pansies placed near her bed.

Occupation.—The first part of the above question is answered by systematically urging the work-cure, and in this we have in mind two circumstances—one as a means, the other an end—namely, the tendency of a persistently suggested mental reaction to become habitual, and the tranquillizing effect of sustained normal employment. We attempt therefore to provide a congenial manual occupation which shall be adequate to the surplus energy to be discharged without contributing to the possible fatigue, and this occupation is repeatedly urged upon the patient. Indeed, if no contraindications exist, it may sometimes be advantageous to insist specifically upon it, although willing employment is always to be desired. When several patients can be at similar tasks or can work in classes, or where the example of others already started in systematic occupation can be kept before them, the spirit of pride and emulation thus called forth often furthers the object in view. When once the first step has been taken it should not be difficult, with sufficient oversight, to keep the patient at work until sooner or later the motor discharge impulse takes the form of a work-habit which continues of its own momentum.

Experience abundantly proves the value of the work-cure both in subduing the extravagant conduct of the uncontrolled maniac, in obviat-

ing many unpleasant secondary symptoms, and, by substituting normal for pathologic activities, in actually shortening the term of the psychosis. Employment, tub and pack, will be found to constitute the therapeutic trinity in the phase of manic excitement, employment being brought in as accessory to or a gradual substitute for the bath.

Manner of Mental Control.—But in all these details we are, after all, looking at the case essentially from the symptomatic standpoint. In no condition is it more obligatory to give scrupulous heed to the subjective state of the patient—to the autopsyche and its relational attitude. The manic mind is expansive and volatile, supersensitive and hypercritical. Impression tends to immediate translation into expression, the reaction type is preëminently psychomotor, and accompanied by a sense of subjective cock-sureness which admits no alternatives and brooks no contradictions. The emotional play is abnormally facile, varied, and extreme; the feeling-tone, although qualitatively in keeping with the other factors of consciousness, is disproportionately exaggerated. Positive and negative psychotropisms are both intensified. Likes and dislikes are suddenly formed and unreasonably strong. First impressions sit upon the throne of judgment and cry down the voice of deliberative opinions. The patient is at once generous and unforgiving, altruistic and intolerant. His mind may be filled with the finest philanthropies while he insolently rails at some minor injury and mercilessly exacts an eye for an eye and a tooth for a tooth.

How shall we deal with a mental state such as this, in which additional artificial symptoms are so readily—so nearly inevitably produced? The observation of a single case is sufficient to indicate the tactfulness which is requisite. We should first assume that the patient is in some degree amenable to kind influences. It is delightfully surprising to note the control which a nurse by the sheer force of her personality is sometimes able to exert over even the most unruly patient, whose respect and deferential regard she has been able to command. Here the question of compatibilities must also be taken into account; and if, as sometimes happens, it is difficult for the nurse, because of possible uncongeniality of temperaments, to get into sympathetic touch with the patient, it will usually be wiser to assign a new nurse to the case at once. Often enough the most gratifying amendment in the symptomatic condition has been observed to follow such a change of nurses.

It is well to make the attempt to appeal to the patient's better impulses, and as long as possible patiently to insist upon the things due from himself to his own self-respect and dignity. A little judicious compliment of this sort will often do much; but it must be sincere, for should the patient scent designing flattery, the game will be lost. It will hardly be needful to add that in all our dealings with excited cases, uncompromising truthfulness is indicated. We must avoid even the appearance of deceit. So much the patient requires and is entitled to. He will not allow even a jesuitical justification of deception. And if once his confidence is lost, our hold on the case may be lost at the same time.

But kindness is not incompatible with strictness. The patient must appreciate not only that he has fallen under kind and friendly influences, but that these influences can assume a power which can and will enforce obedience if milder measures do not suffice. He must know that the velvet-gloved hand which guides him will at need be found a hand of iron.

The Reward-Penalty Method.—And here a pertinent question arises which cannot be passed by. What shall be understood by discipline in cases of excitement, and what shall we say of the measures which may be interpreted as punishments? In these things perhaps opinions go widest apart, or, shall we better say, practice and preaching oftenest part company. On the one hand the categorical doctrine is launched that there must be no evidence of disciplinary or punitive means in the control of symptoms. We must apologize, so to speak, when we resort to severity. We must assure the patient that he is a sick man, that his extravagant conduct, his open violence, his brutal acts, his outrageous license of speech, are merely symptoms of disease, that our means of dealing with these symptoms are strictly curative, that the cold pack, isolation, restraint, are in no sense penalties for bad behavior, but only therapeutic measures employed for their quieting effect.

So much for the doctrine; while on the other hand we may perhaps take the risk of saying that in the actual practice of every institution where patients of the type here considered are treated, methods will be employed—however mild or infrequent they may be, and with or without sanction—which, from the patient's standpoint at least, are essentially punitory.

It is highly desirable that discrepancies such as these should be corrected. There is surely a middle course which represents a more rational attitude to assume toward the violent or unmanageable case.

The patient must be considered, not from one viewpoint alone—that of illness—but from three: (*a*) pathologic, (*b*) pedagogic, (*c*) ethical.

PATHOLOGIC VIEWPOINT.—Illness has been made to cover a multitude of sins for all of which it is not justly accountable and it will never be fair to ascribe all the improper words and acts of excited patients to their illness alone, until that day of human regeneration has been reached when such words and acts are quite deleted from the lives of assumably normal and healthy individuals. The illness may offer the key to the situation, it may unlock Pandora's Box whence issue the other morbid impulses, but it does not manufacture them entirely *de novo*.

PEDAGOGIC VIEWPOINT.—From the pedagogic viewpoint we learn of analogies between the reaction-mode of the maniacal patient and that of the normal child. Both appear possessed of an exuberance of energy which is expended in more or less unrestrained or extravagant conduct—in the child because inhibition has not yet been developed, in the patient because inhibition has been temporarily annulled. The common result in the two cases is that the surplus energy often ex-

presses itself in impulsive and harmful ways which must be checked and moreover in the two cases experience shows that the analogy does not stop with symptomatology, but extends, with limitations, to include treatment as well. In both cases we are forced to consider the rationale of punitory measures.

ETHICAL VIEWPOINT.—We are told that the heart, supposedly of mankind in general, is deceitful above all things and desperately wicked. This is palpably overstating a point, and yet it expresses just the circumstance that must be borne in mind in this connection—namely, that the maniacal patient simply shares with his more temperate brethern all those tendencies, more or less marked in different individuals, which we variously designate as harmful, noxious, vicious, sinful, criminal, etc. They are not merely new and morbid elements altogether alien to his humanity, notwithstanding the protesting assurances of relatives to that effect; nor is it fair to judge and treat them exclusively as such. Persons otherwise well who exhibit these aberrant tendencies to a serious degree have ever been visited by authority of the law, with penalties as a restraining means; and it is inconsequent solely on the ground of illness to eliminate utterly the penalty-moment in the cases we are considering.

A dominating idea of reward and punishment is to be sure not a very excellent criterion of conduct for a normal self-respecting adult; and yet this idea has probably figured more than any other as a controlling factor in human life in all times. We have not got away from it in pedagogy; in criminology we are still under its dominion; and the analogies above indicated should make it clear that we cannot entirely escape it even in mental pathology. We may freely admit that punishment, as such, is in all circumstances only a compromise—even a poor compromise. But it is one of the compromises mankind has lived by since first history was written.

RESULTS. — Finally, the pragmatic method comes to our aid in dealing with the reward-penalty idea, and what we find is, that in properly selected instances, it works. There are patients of a certain type who respond more readily and favorably to the idea of rewards for good behavior and penalties for bad, than to any other; and these were among the cases in mind when it was said above that mechanical appliances of restraint might not always be a pseudotherapeutic means. We hold it just to offer to patients as inducements to the self-regulation of conduct certain privileges, usually in the form of coveted liberties and a progressive enlargement of freedom; and in this we even insist upon the reward-motive in those cases to which it will appeal. In suitable cases it is equally just to apply the penalty-motive in the reverse situation, and a brief isolation or restraint or the withdrawal of certain privileges may sometimes be the method of choice.

It may be objected that the mere possibility of self-control in maniacal conditions is a very uncertain thing to reckon with; and it may be replied that we occasionally have very surprising demonstrations of that fact. A good-humored wager was once made with a boisterously

excited patient to the effect that he could not voluntarily remain quiet for five minutes, whereupon he sat down and remained silent in his chair for more than a half-hour!

It may seem dangerous and unwise even remotely to sanction the punitory method, for among nurses and attendants the tendency in that direction develops only too spontaneously, and even in the face of strict prohibitions. Yet it would seem safer to have an open understanding and agreement upon the question among all concerned, to recognize facts as they exist without trying to dissimulate them, and to be honest enough with ourselves to call things by their right names.

Sometimes in a sentimental enthusiasm for Utopian ends, for example an unqualified non-restraint regime, we would sacrifice the nurse to the fury and malice of an unruly patient whose most striking characteristic to lay observation might be simply a plus of innate devilishness. Shall we wonder then if surreptitious punishment is occasionally meted out to the offender by a nurse who is also only human, and who may feel that he or she is merely taking justice into their own hands?

To obviate just such irregularities as this would be one reason for suggesting a rational punitory system, for it may be here further objected that the abusive or aggressive impulses of certain excited cases are perhaps largely artefacts, due to tactlessness, harshness, or cruelty on the part of those in control. This is unfortunately too often true. But the physician who gives himself the trouble should be able to recognize artefacts of this sort and administer correction where it is due. At the same time it must be conceded that to maintain agreeable relations with the excited patient, would in not a few instances require of the nurse an almost supernatural temperamental poise and self-control. The ideal mental nurse male or female is a rara avis. Were they oftener available the vicious tendencies of certain cases expressed in various retaliation artefacts would be materially reduced. The circumstance points to the necessity that the nurse be specifically instructed in every case as to the details of correct attitude and control. To assure this may be more than half the sum of treatment in the case. But even with the ideal conditions, which we continue calmly to exact and complacently to forego, the reward-penalty method could not be entirely brushed aside. There will always be cases where it is in order. But we should be able to give assurance that it rests in proper hands, and that its exercise depends upon a real appreciation of the psychologic situation; for it goes without saying that no penalty however light should ever be inflicted upon a patient without the specific instruction of the director of the case, and only when he conscientiously believes that it is the best or only method, and then in the mildest form adequate to the necessary end. Wherever penalties are imposed it must be done dispassionately, as a court dispenses justice, and with the same scrupulous forethought which should characterize, under ideal conditions, a parent's chastisement of the child.

There are doubtless those among the readers of this chapter who

will take alarm at the tolerant mention of the words "restraint" or "discipline," and who will gloomily point backward to the years before Pinel, Tuke, and Chiarugi, since when happily, *c'est bien changé tout cela*. But there has been too much popularized alarm over these words, and there has spread abroad a certain fear of openly allowing any truce at all with methods which have unquestionably been responsible for such flagrant abuses in the past. But this is not surely the course of reason, and even a policy which is nine-tenths bad may still contain one-tenth that is good; and it is the eclectic obligation of the scientific physician to distinguish and apply that tenth. To urge that disciplinary measures or restraint tend to have a demoralizing effect upon the nursing personnel who may wrongly apply or improvise them is really an irrelevant argument, inasmuch as it is directed not against the methods in question, but against those into whose hands their application might fall. Any method is liable to misuse if left in unskilful hands. The safeguards here are obvious—a conscientious physician and trustworthy nurse. All repressive or disciplinary measures will then lie exclusively within medical control and only such orders as are issued will be carried out.

Individualization in Treatment.—The first postulate of rational mental therapy is that each patient is to be considered individually, and that the program of control must be made out to fit his individual qualities and needs. No one would think of suggesting that there could be any single method which would fit all cases; but is it any less arbitrary to maintain that a given method could be applicable to no case at all? Either position would be forcing an extreme, and attempting to set up a universal law, thus doing violence in either case to the axiom of individualization just mentioned.

There are but three methods of control in the order of their dignity, as follows: (*a*) reason, (*b*) persuasion, (*c*) coercion; and it goes without saying that these means should be consistently tried in the order named. No patient should be persuaded merely if the ways of reason are accessible; and no patient who can be persuaded should be coerced. When, however, in a given case coercion becomes the ultima ratio, we are *ipso facto* in the immediate neighborhood of the reward-penalty concept, to which it should be possible wisely to resort according to the individual indication. We shall be sufficiently guarded from its abuse by recollecting that the memory of a harsh or unkind act on the part of one in charge is the thing which rankles longest in the mind of the excited patient and may render ineffectual any subsequent efforts at beneficent influence over him. It is necessary to have an appreciation of the patient's viewpoint in such matters, as it has been so admirably expressed in the autopathography "A Mind That Found Itself."

End of the Psychosis.—In cases which like our paradigm have run the complete cycle of the manic-depressive psychosis, as the excitement gradually subsides the question may again arise, is convalescence or another alternate phase to be expected? The latter

possibility must not be forgotten, although it is much more usual for the patient to get well after passing through the second affect phase. We selected as our pattern the commonest of the complete types of the psychosis, that in which depression opens and excitement closes the scene. Besides being the most frequent course, this is also the one most encouraging at the beginning; for not only does a depressive attack, of all the single-phase affect types, carry with it the most hopeful ultimate outlook, but conversely a case commencing as depression holds the best chance of turning out to be a single-phase attack. When excitement is initial the likelihood of a succeeding alternate phase is somewhat greater.

STATES OF STUPOR

But not all cases begin with dominant depressive or expansive syndromes. Occasionally the prodromal symptoms pass rapidly into a deepening psychic inhibition, the so-called cyclic stupor, in which associative activity appears almost entirely checked, and there may be practically no affect expression of any sort. The manner in which a stuporous patient reacts to stimuli furnishes the chief indication as to how the case should be handled. If the inhibition be very intense, speaking to the patient may produce no apparent reaction. Even repeated questions may elicit no sign of response. He remains passive and motionless, with mask-like countenance, partially closed lids, and fixed expressionless eyes. More often, however, some expressive movement can be observed—a quiver of the lips, a slight turning of the eyeballs, possibly a faint flushing of the cheeks, the movement of a hand or finger, or an increase in the respiratory rate. Whatever the reaction be, we detect the evidence of effort and of a vague sense of helplessness and inadequacy.

Such patients are kept in bed and managed in general like those in the early stages of depression, to which they are closely akin. Here, however, the expectant method must for a certain length of time be more unqualifiedly followed, as a rule, than in any other type of the psychosis. The number of sensory stimuli is reduced at first in every way possible. No tax is placed upon the associative function by attempting conversation with the patient, and the minimal expenditure of psychomotor energy is to be required of him.

Special attention must be given to nourishment, in view of the almost complete inertia, the inability to masticate, and possible deglutition dangers. Liquid food is usually necessary, and in cases where the patient is even unable to initiate the swallowing movement and simply allows the food to run out of his mouth, the tube may be required. But repeated attempts with the spoon or feeding cup should first be made. As in the depressive cases a thorough cleansing of the intestinal tract is always indicated; and though no strict constipation tendency be present, the failure of intestinal evacuation as a part of the general

inertia may long have to be combatted. Even an occasional catheterization may be necessary. In inhibited and inert cases particular care must be given to the condition of the skin. The eyes should also be watched and if the winking reflex is insufficient, conjunctival troubles may arise and antiseptic or emollient collyria be indicated. In these patients gentle massage may often be used to advantage.

Cyclic stupor may last a number of weeks or several months; and as the patient begins to rise above his inhibition, employment and the general routine for the improving or convalescent case are substituted for the expectant method. The greatest care must be used at this time not to urge the patient too much, and set him back by overtaxing his initiative. Gentle exercise, the simplest hand occupations, mental diversion, and finally mental exercise should successively lead him back to the normal level.

At the emergence from stupor the same prognostic question presents itself as at the close of a depressive phase, and the same determining points hold good. One case will satisfactorily convalesce, while another, with heavier constitutional handicap, may have first to bide his time through a succeeding phase of excitement.

CONVALESCENCE

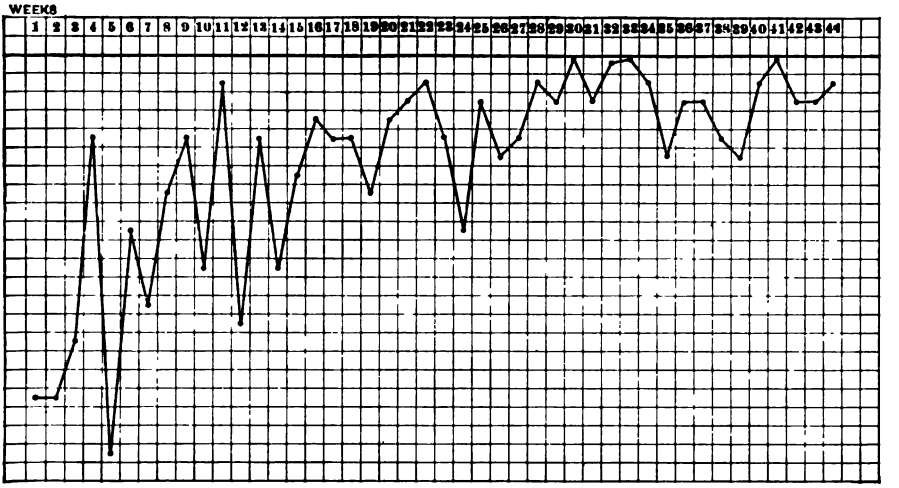
Readjustments of Convalescence.—Whatever the course of the psychosis, when convalescence is finally under way, various new questions claim attention, and in some of them even more thought, diplomacy, and directive acumen may be called for than in handling the current problems of the active psychosis. Through his illness the patient has got temporarily out of joint with society. Often the articulation was imperfect before the illness. In any event a readjustment is now required. Such a readjustment can never be altogether one-sided. Partly the patient must be brought to fit his social environment, but partly also the environment must be brought to fit the patient if the best results are to be achieved.

And first, what is necessary on the part of the patient? To answer this question we must summarize the symptomatology of convalescence. The manifestations of the psychosis proper are now largely in abeyance. A few isolated symptoms representing habit tendencies during its course may still survive. Certain residuals also of the coincident depletion of nervous energy are observed in various paresthesias, pains, fatiguability, etc. An occasional artefact of long standing may yet persist. These must all be appropriately dealt with. But more important than all the rest to be considered at this time are the constitutional symptoms *per se*.

Constitutional Symptoms.—The broad scope of the constitutional psychopathic traits and all the injurious or inefficient reaction-modes which we here include with them has previously been indicated. The reason for their differentiation early in the case is self-evident. It

is both convenient and desirable to deal with one group of symptoms at a time, and in our initial efforts to gain mental control of the patient we may not treat confusedly recent abnormalities and long-standing psychopathic characteristics. The patient in the presence of his illness is aware that he is different from his former self, and insofar as associative processes can take place at all, he is in some sense conscious of the manner of the change. However warped his insight and judgment may be, his recent symptomatic changes are in the foreground of consciousness, whether as causes or effects, and it is therefore not unnatural to him that they should become the central subject of discussion at the outset; and it was right that on them the controlling influences should be first concentrated. His constitutional traits, on the other hand, whether morbid or sound, he has lived long years with, they are his second nature; and had we confused them with recent symptoms (excepting of course insofar as the latter are merely aggravated constitutional signs), or promiscuously attempted the amendment of both at the same time, we should have tended only to add to the patient's perplexity or spirit of antagonism, and proportionately have defeated our purpose.

FIG. 43



Vicissitudes of convalescence. Detail from Fig. 42. The attempt is here made to estimate quantitatively the slowly waning affect depression. The curve is the result of hourly observation of the patient's mental state over a period of nearly a year, by the end of which time convalescence was practically complete. A severe constitutional handicap accounts in part for the facile recrudescence of symptoms, as indicated by the irregularity of the curve.

Now, however, while convalescence is advancing and insight becoming more adequate and our attention is released from the psychosis proper, the constitutional symptoms loom large. Under the stress of the disease they have perhaps been intensified, and may constitute an annoying complication of the convalescent period. To them atten-

tion must now be directed, in order to facilitate the patient's better adjustment to the outside world, to raise if possible the level of his mental equilibrium and to add a prophylactic element to his outlook for mental health.

Psychiatric Pedagogy.—The ways and means of dealing with the constitutional symptoms cannot here be entered upon, but their nature will be sufficiently indicated by saying that they should be those of pedagogy suited to the uses of psychiatry in its individualizing application. Their object is to awaken in the patient a healthier, broader, stronger self-consciousness, to give him, so to speak, a therapeutic insight into his own psychic state, and by a specific mental self-discipline to seek to modify or eliminate unfavorable constitutional characteristics, and to replace them with sounder habits of mind—in one word, to guarantee him if possible a more efficient self-mastery, as a future asset of health.

The mind, like the body, thrives best on a variety of foodstuffs, and the personality is strengthened and enlarged according to the amount and diversity of assimilable mind-food one lays hold upon. Many persons who assure themselves of a luxurious assortment of proteids, carbohydrates, and fats would perhaps be shocked if the discordant poverty of their mental dietary could be graphically set forth. This is true in the world at large, and likewise in our patients we often find the path of their antecedent mental life unfortunately straight and narrow. It is always well to seek to correct this circumstance in dealing with the convalescent case. The work here is strictly educational in the truest sense, and the methods are those of pedagogy based upon the psychology of the individual. Not only must the patient's natural aptitudes, inclinings, and capabilities be consulted, but suitable new interests must be awakened; new fields of activity opened, whether for recreation, pleasure, or profit; new highways of knowledge made invitingly accessible; new modes of wholesome enjoyment brought within reach. Such a finishing process is by no means visionary and vain. The ideal environment during convalescence should comprise not only the necessary medical facilities, together with ample opportunities for employment, but a real department of learning and culture as well. Here should merge the motives of hospital, workshop, and university. The hospital idea should be emphasized in the patient's mind as little as possible, withdrawing gradually behind the educational idea which is held logically in the foreground. The medical staff might therefore profitably be supplemented by a corps of teachers, including, besides manual and physical trainers to conduct occupation, games, and sports, instructors who should provide appropriate courses in letters, arts, or science, comprising lectures, and class and field work. The benefit of such methods was understood by the Greek school, and was urged in England a generation ago by Hack Tuke. The appeal of such a variety of activities and interests, carefully suited to individual needs, not only furthers most satisfactorily the progress of convalescence, but in expanding the personal horizon,

developing new resources and the strength of new attainments, makes for the better adjustment of the individual to the outside world. And through all must be kept foremost the pedagogic idea, whose final purpose is to strengthen the will, clarify thinking, conserve nervous energy, economize emotion, and in all ways to harden the psyche against the accidents and ordeals of later life.

Adjustment of the Milieu.—When a convalescent patient may safely be returned to his milieu is likely to depend quite as much upon outside conditions as upon his own; and more in proportion as these external conditions have figured in the pathogenesis of his malady. Many a convalescent is indefinitely delayed in taking the last steps to recovery by the painful consciousness that the conditions of life to which he must return are unfavorable or uncongenial. Circumstances of this nature are less likely to arise in cases favorable for home treatment than in those requiring hospital care. But in all it is necessary carefully to consider the environment from all viewpoints—the general neighborhood surroundings and associations, the conditions of work and of business relations, the material necessities and comforts of life, family relationships and disharmonies. In all these points advice or specific direction may be needed. Wherever indicated environmental changes should be recommended and brought about if possible. Particularly in the domestic associations it may be necessary to give explicit instructions. The relational attitude of the several members of the family toward the patient must be taken into account and it should be possible to make tactful and effectual recommendations as to such changes in conduct or attitude as may be essential to his welfare. Wherever the patient has been a party to an unhealthy home association—as for example between sisters, mother and daughter, husband and wife—if the situation cannot be amended, separation, temporary or permanent, may be clearly indicated, and if so should be unhesitatingly advised. Ties of blood or marriage should hold only when they make for the mutual well-being of those so bound together.

Resuming Independence.—When the utmost has been done to prepare patient and environment for each other, the former's liberty and responsibilities are gradually restored to him, if in a hospital usually by trial trips and visits of increasing length and variety. Recreation and pleasure excursions, contraindicated at the beginning of the illness, may now do excellent service. The dread which patients often have of resuming their independence and social relations may be gently but confidently combatted, unless dependent upon demonstrable inhibition and insufficiency. Nostalgia, also, may be disregarded if there is sufficient indication for continued supervision; unless, as not infrequently happens, it reaches such a degree of intensity that the resultant harm in terms of mental distress outweighs the possible advantage of further treatment. Too early freedom in convalescence from excitement incurs the risk of alcoholic or other excesses or extravagances of conduct amounting even to a relapse, while in the depressive

case the danger of suicide must not be forgotten. Only too often the patient seemingly recovered from a phase of depression suicides within a week after returning to his family.

PROPHYLAXIS

Mental prophylaxis in the recovered patient comprehends all those factors of readjustment which have been alluded to before, together with various precautionary or protective measures which require protracted or permanent observance. In each case the balance between exogenic and endogenic factors must be estimated as nearly as possible; and in proportion as the latter factors predominate, the prophylactic lines must be more carefully drawn. The lessons of experience are to be applied in the attempt to obviate in the patient's subsequent life such circumstances as may have contributed to or been associated with the development of his disorder. Excesses in *baccho et venere* must be strictly guarded against. The former it is often wise to prohibit altogether. Recommendations must especially be made for the regulation of daily habits and hygiene, in order that the bodily functions of assimilation, elimination, energy, expenditure, and recuperation may be fulfilled harmoniously and effectually; and that such eufunction may become established as habit and automatically maintained. The observance of these, to the patient perhaps seemingly minor points, can never be taken for granted and they must be insisted upon always in the most definite manner. Overburdening of all sorts, physical and mental, the patient should be spared, and in general as even a mode of existence as practicable promoted.

It may be difficult to insure all the safeguarding desirable without fostering too strongly and to the patient's detriment the idea of mental invalidism. This has proved to be an unfortunate factor in many cases, and on this point the family and immediate associates may profitably be advised. They should so understand the patient's situation that they may preserve a rational and salutary attitude toward him. The recovered patient who feels that he is still being looked at askance, that he is surrounded by an atmosphere of distrust or misunderstanding however slight, that his conduct is scrutinized for possible aberrancies —such a patient is laboring under serious disadvantages much to be regretted.

Child-bearing. — The regulation of conjugal life is often the foremost prophylactic consideration in female patients. Manic-depressive attacks are quite commonly associated with the reproductive function. In certain cases each successive pregnancy is the signal for the outbreak of a new attack. And yet in some families such an outrageous state of savagery exists that in the face of repeated experience of this kind, the hapless wife, convalescent from her psychosis, is either allowed or forced to conceive again, and yet again; and each time must endure the added burdens of recurring mental breakdowns. One young woman

between the ages of twenty-one and twenty-eight gave birth to five children; and after each confinement, under almost indentical circumstances, underwent a depressive attack. The first four attacks were all of the same nature, deep uncomplicated affect depression, varying in duration from two to nine months. This irregularity was explained by the fact that each attack was terminated by a succeeding pregnancy, the patient regularly clearing up shortly after she had become *enceinte*. The fifth attack began like the others, but after two months of depression passed into an aggravated maniacal phase which continued an entire year. In somewhat less than eight years this patient had spent practically four years in pregnancy and more than three additional years in manic-depressive attacks. Less than one year in the eight was she allowed to enjoy health. Nor is "enjoy" the right word even then, for her husband was alcoholic and brutal and her life with him obnoxious to her. Separation was positively advised and conjugal relations were broken off. In the succeeding six years the patient has not been pregnant and has had no mental attack.

There is no agreement among authorities as to whether pregnancy should be artificially terminated with the hope of influencing favorably a concurrent psychosis. On this point perhaps least of all could one rule fit all cases. The question must be answered without bias in each instance, with such light as individual conditions afford.

DOCTRINE OF RECURRENCE

To the subject of recurrence we must now briefly turn our attention. As was set forth earlier in the chapter the synthetic tendency in psychiatry during recent years has brought together all the affect psychoses under a single name, and has shown that the various attacks whether of the same or different type which may occur during the lifetime of an individual may be simply varied expressions of one and the same disease. To select a pattern for this polymorphous disease it was necessary to choose the most representative type—the circular recurrent case. But when once a pattern is set up, the tendency of the schools has even been to make of the pattern a sort of fetish and to expect that all the disease forms in question shall conform to it. It is the natural result of this tendency that we should regard a single attack of depression or excitement as only a partial expression of the real disease, and to look for its completion in the coming years as something almost inevitable. Thus the dogma of recurrence insidiously grows up, as a more or less fatalistic doctrine; and what avowedly occurs in many cases, we come to expect in all, and not only expect but resignedly await.

The whole synthetic tendency, while based upon unquestionable truths, is not therefore without dangerous consequences which have prevented its universal acceptance. Among those who have wished to avoid these dangers may be mentioned Wernicke, Hitzig, Régis,

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long been associated with epilepsy, periodic debauches being looked upon as epileptic equivalents. Such an association is in many instances truly enough demonstrable; but there are a good many others, as recent authors are pointing out, which are more correctly explained on the basis of constitutional affect instability. Dipsomania is a symptom of varying genesis. In the epileptic variety, the blindly, resistlessly, impulsive character of the alcoholic debauches is insisted upon. But even in these cases a periodic affect change, the so-called epileptic depression, precedes the crisis of forced drinking which the patient resorts to as a means of relief, just as in primary dysthymic states. We should hesitate wisely in assigning any case of periodic alcoholism to the epilepsy group, unless other tangible evidence of the latter disease is present.

Dipsomanic exhibitions occur in the course both of the depressive and exhilarated phases of cyclothymia. The patient plunges in potia in the one case to drown his sorrow, in the other to celebrate his joy. In hypomanic conditions alcoholic indulgence may play the parts both of effect and cause, thus establishing a vicious circle. The diminished inhibition of mild intoxication is closely akin to that of hypomania. Either may lead on or reënforce the other and in cases of constitutional affect instability it may sometimes be difficult to determine precisely which factor opens the scene. This, however, is of less importance than to recognize the fact that with many victims of periodic alcoholic excesses, especially those with abstinent intervals, the drinking tendency is in large part secondary and symptomatic; and that such cases, so often misunderstood, should not be locked up simply as "drunk and disorderly," but are entitled to the treatment and protection due the cyclothymic patient.

Exaggerated Eroticism.—The hyperthymic state may show itself further, in exaggerated erotic tendencies with all the implied dangers, both to others, and especially to the patient himself in the risk of venereal infection. In young women of irreproachable character defloration may easily occur by reason either of increased sexuality or diminished inhibition, or both.

In this connection reference may be made to the close relationship in many patients between the menstrual curve and the mild affect irregularities under consideration. The so-called *menstrual psychosis* is usually of the hyper-, dys-, or cyclothymic form. In patients of this class, a mild premenstrual malaise may expand into a definitely morbid dysthymia, which may or may not be followed during the period of flow by the alternate signs of exhilaration. Numerous women thus pass each month through a definite though attenuated cyclic psychosis lasting altogether a week, or perhaps longer—a miniature copy of our paradigm. Such cases may never require treatment. The transitory affect changes may be fairly well marked, and yet because of the association, attract little or no attention as being abnormal, until under the stress of some unusual tax, mental or physical, *e. g.*, child-bearing, an outspoken psychosis develops. In some women the symptoms of

exhilaration appear alone or in excess during the menstrual period, and with a specific coloring, which furnishes the human equivalent of the phenomenon of "heat" in other animals.

Another hypomanic danger, both in men and women, lies in hasty ill-advised marriages. These are not very infrequent, and are not necessarily associated with hypererotism, although naturally such is often the case. Even in the early or convalescent stages of grave manic-depressive attacks, accidents of this sort have been met. Young women emerging from their psychosis through decreasing stages of excitement have by virtue of preternatural vivacity and esprit, or aggressively insinuating charm, commanded attention which normally they might have lacked, and which has resulted in unfortunate matrimonial alliances.

So much for the misinterpretations and dangers associated with mild expansive affect states. The importance of their consideration lies in the frequent involvement of others besides the patient in misfortune. In the dysthymic conditions it is the patient alone who suffers; and not only from his primary psychotic state, but frequently from the consequences of false diagnoses as well.

Psychology of Depressive Stages.—In watching the slow subjective changes in one of the deeper depressions, as the patient advances toward convalescence, we may sometimes observe a very striking successive shifting of what we may call the affective centre of gravity, corresponding with the phases of improvement. In the deepest stage of tetanized consciousness all thought and feeling centre on the *soul.* It is at once the object of reprobation and despairing anguish. No talk of mind or body or people or things can command the patient's attention. His lost soul is all. It is the final fact. No alternative presents.

In the next stage doubt appears. Soul perdition does not seem so inevitable, at least not so reasonable or just. The tetanic grip of the disease is relaxing its hold upon consciousness. Associative activity widens. But in the doubting which goes with the increased thinking, the patient is aware of the variability of his mental processes. His psyche has passed from the categorical imperative to the subjunctive mode. He halts between two opinions. Subjective certainty is no longer the resistless blind guide of the earlier stage. Are his mental activities then trustworthy? Are not they themselves at fault? This question the patient asks himself, and herewith the focus of consciousness and of anxious concern is shifted from the soul to the *mind.*

This is a psychic metamorphosis always welcome. Not only does it presage a further stage of improvement, which under favorable conditions may be expected to follow spontaneously, but it marks the transition from the inaccessible to the relatively accessible state. The patient who previously withdrew entirely within himself and stood utterly aloof from all suggestive influence, now listens unopposingly to explanations, suggestions, or encouragement; and presently of his

state the risk of sexual delinqencies must also be remembered.

Patients of this type should be under special supervision during the whole of the menstrual cycle, and as painstaking mental control should be exercised as in the severest cases. Often they are peculiarly susceptible to suggestive influences and give gratifying evidence of an ability to acquire new and sounder emotional and volitional habits. Such care bestowed upon the patient for several months, possibly even for the first year or two after puberty, may forestall the development of an outspoken manic-depressive psychosis which might otherwise seriously menace a lifetime.

SUICIDE

The question of suicide has already been referred to several times. In the suicidal cases which fall under this discussion we are dealing, not with that class of unfortunates whose self-annihilation may constitute, as someone has said, "the last act of reason," but on the contrary with definitely morbid mental states presumably recoverable, in which the thanatophilic impulse is simply one of the symptoms to be treated, and is very often determined by a specific delusion which will pass. Our foremost object therefore must be to recognize the danger of this symptom and be prepared to avert its consequences.

The danger of suicide is to be reckoned with throughout every state of affect depression, pure or mixed, mild or grave, and in the emerging periods which herald convalescence or the alternate phase. Not infrequently in insidiously developing cases an attempted suicide is the first thing to bring the patient's mental status in question. In all depressive conditions eternal vigilance is the only safeguard. Too many suicides occur even under supervising care in cases "not supposed to be suicidal," or which "had shown no tendencies to self-destruction," or which indeed were "believed to be improving."

What should be the attitude toward a depressive case with reference to possible suicide, which shall at the same time insure effectual preventive measures and yet not unnecessarily or painfully suggest these measures to the patient's mind? The degree of coöperative accessibility will determine this point. If any sort of rapport is possible the patient's symptoms must inevitably be discussed with him, and among them suicidal tendencies should be handled in the same careful but straightforward manner as any other manifestation of his illness. They need not be glossed or passed over in silence. Many cases, feeling that the thought of ending their own lives, represents the last stage of unworthiness and degradation, may seek in every way to conceal it, until some day it works itself out to their undoing. Such a danger should be averted by an early frank discussion of the situation in which the desire for death is set in its right light, as a symptom and nothing more. Especially the associated idea of blame

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9. Depressed patients in whom a subtle tendency to deceptiveness or evasiveness is detected cannot be too scrupulously watched.

10. A suicidal attempt must be especially guarded against on the eve of an unwelcome or dreaded event.

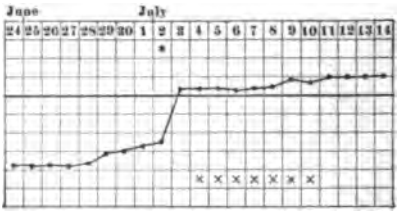
11. It is dangerous to force upon a patient measures which are too widely at variance with the behavior his delusions prompt, *e. g.*, taking a strongly seclusive patient into a numerous presence, sometimes even out of doors. An attempt on his life may be his mode of escape.

12. Suicide may be unintentional. The pseudosuicidal efforts of hysterical and psychopathic cases to attract attention or sympathy, may accidentally be carried too far.

13. Patients subject to terrifying dreams must be well guarded at night. They may make somnambulistic suicidal attempts.

14. The same precaution is necessary in delirium. A distressing hallucination may give rise to a sudden suicidal or homicidal act.

FIG. 47



Relation of suicidal attempts to the waning of a digressive phase. Curve represents the transition period of a cyclic case. Serious suicidal attempt on the day indicated by asterisk. (Jumping from a height—fractured rib and other injuries.) The patient, previously deeply depressed, passed immediately thereafter into a hypomaniacal phase. The sudden transformation was naturally attributed by the patient to the shock of the fall. As the curve shows, however, definite signs of improvement—especially increased interest and initiative—had been noted for several days. The suicidal attempt, therefore, whatever its effect in accelerating the transition, is to be looked upon as symptomatic of the end-stage of depression with its freer psychic activity and volition. Duration of depressive phase nine months; of hypomanic phase three months. The crosses below indicate menstrual period, the first in four months. In a subsequent attack the events of the above curve were almost exactly duplicated, the suicidal method only being different.

15. Cases showing alternation or mingling of symptoms of depression and excitement are just as unsafe as—at times even more than—those uniformly depressed.

16. Patients subject to "impulsive acts" may abruptly make an entirely unexpected attempt at self-injury.

17. After removing all other possible weapons from reach of the depressed case, his finger-nails should be closely trimmed and kept so.

18. The fact that it may be almost, if not quite impossible to prevent self-destruction in a patient who is firmly resolved, indicates the extreme degree of vigilance which is called for.

19. This vigilance must be exercised with a discretion and tact which seek to avoid emphasizing the thought of suicide in the patient's mind,

and as much as possible to spare him the uncomfortable feeling of being distrusted and spied upon.

20. Every instance of a patient under care succeeding in taking his life bears witness that those whose minds are assumed to be sound have been outdone in cleverness, watchfulness, or persistence of purpose by one whose mind is diseased.

MARRIAGE

The Two Questions.—The question of marriage is one which very often arises in connection with the manic-depressive psychosis. What advice should be given the patient who has passed through one or more affect attacks, or who may be a definitely constitutional case? The question, however, is not one but two which must be answered separately and independently. The first concerns the patient's welfare as an individual. The second is the broader one of eugenics.

There has been a good deal of autocratic pronouncing on the part of the faculty as to who should marry and who not, which has not always been entirely relevant and logical. The trouble has been that the two questions above mentioned have not been carefully enough distinguished. Whatever teleologists may say to the contrary, it remains a pragmatic fact that marriage is not commonly looked upon as a means to the end of perpetuating the species, but rather as a condition for the increase of individual happiness. It may subserve either or both or neither of these purposes, and both must be taken into separate account in advising or discouraging marriage in a given case. It has been quite the fashion, on eugenic grounds, to forbid the marriage of a person who has passed through a psychosis; while on the other hand to patients assumed to be simply "nervous," marriage has perhaps as frequently been recommended as a therapeutic measure. The incompatibility of these standpoints requires no demonstration.

The Conjugal Relation.—In the first place, we must judge whether the welfare of the individual and of the other party to the contract will be furthered by their union. But the answer to this question when all the factors in the case are clearly set forth must come from the contracting parties themselves. With patients belonging to the last of the three prognostic groups distinguished, it may be assumed that the question of marriage would seldom arise; but in the others, and particularly in those spoken of as the reactive cases, it is a perfectly fair one which must be resolved always by individual conditions. For such patients marriage may be good or bad for just the same reasons that apply universally, the factor of the mental illness being reckoned simply as one of the host of misfortunes, possible or probable as the case may be, which threaten all mankind, and come sometimes as single spies and sometimes in battalions. It would be much more reasonable to sanction the marriage of a recovered reactive affect case than that of the average neuropath for whom the step is

now and then suggested "to settle the nerves." The question is after all one of personal right and privilege, and as for the unqualified prohibition still occasionally advocated, no law or logic can ever justify such an infringement of individual liberty.

Reproduction.—Should the manic-depressive case be allowed to beget or bring forth children? This is the second question and entirely distinct from the first. In a great many instances, probably in the majority, the answer would be in the negative, and yet even here there can be no absolute law. In women the question is not alone one of eugenics. The effect of child-bearing upon the patient's health has also to be considered. Manic-depressive attacks are especially liable to occur in association with the reproductive function, and experience shows that certain women who keep well otherwise are almost sure to have an affect upset during pregnancy or lactation. In patients therefore whose psychotic tendency is strong, conception is contra-indicated first of all on the score of the health of the individual. On the other hand there are examples of recovered manic-depressive patients, even of severe recurrent type, who successfully pass through the reproductive process, and whose health during pregnancy, mental as well as physical, is unusually good.

Eugenics.—From the standpoint of eugenics the question becomes somewhat narrower. The affect psychoses, especially the strongly constitutional and cyclothymic types, are among the commonest familial diseases; and in proportion as the constitutional elements in the parents are exaggerated, thus determining in them a higher degree of affect instability, is the same tendency likely to reappear in the children. In a multitude of cases with conspicuous endogenic degenerative factors an injunction against reproduction is therefore justifiable on the ground of race improvement, although in many of these marriage might still be permitted.

The surest and most satisfactory means to this end is artificial sterilization, already widely practised, an operation which when properly done insures its object without jeopardizing the third native right guaranteed to every individual under the constitution. Voluntary, or among the lower social types enforced, sterilization is the method of preference, although it can never meet with universal acceptance. It must therefore be supplemented by systematic anticonceptional measures prescribed by the physician and conscientiously carried out. The ancient sentiment against the use of means to prevent conception —always more a theory than a practice—has undergone a timely modification, thanks to the influence of such men as Forel; and it is incumbent upon physicians with mental cases to discuss frankly the subject of marital relations, both with the patient and with the husband or wife, to the end that their conjugal life may be normally lived, but, where desirable, without the risk of offspring. Explicit directions from the medical advisor will also do away with various abnormal and injurious preventive practises so widely prevalent, and which themselves are often the cause of distressing nervous manifestations.

In a word, the whole object should be to place the question of the sexual life and reproduction upon the same rational basis as any other factor in the prophylaxis, treatment, and general regulation of the mental conditions we have been considering. A voluntarily childless marriage may offer a gloomily incomplete prospect of domestic happiness, but the individual should have the right to choose it if he so desires in preference to the life of celibacy. The fact that he may not enjoy one of two blessings is no reason why he should be compelled to forego both. Moreover it is not to be forgotten that unqualified marriage prohibition on eugenic grounds not only tends to defeat its own purpose by encouraging illegitimacy, but works mischief for the individual as well in fostering moral laxness and the spread of venereal disease.

The eugenist naturally and laudably desires that only children sound and complete in mind and body should be brought forth. But he can afford to pause now and then and season his ambition with the reflection that had the generations gone produced only children of assured mental health and balance, the names of Socrates, Petrarch, Dostoiewsky, Schumann, Coleridge, Napoleon, Cowper, Newton, Tasso, Ruskin, Southey, Mohammed, Keats, de Musset, Byron, George Sand, Manzoni, Burns, Swift, Flaubert, Beethoven, Luther, Carlyle, Comte, De Quincey, Fechner, Poe, Saint-Pierre, Joan of Arc, Cromwell, James Thompson, Savonarola, Lamb, de Maupassant, Cellini, Baudelaire, Shelley, Schopenhauer, Goethe would be missing from the world's hall of fame.

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CHAPTER XIII

THE TREATMENT OF DEMENTIA PRÆCOX AND ALLIED CONDITIONS

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INTRODUCTION

It might appear that an article on the treatment of dementia præcox, of general acceptance, could not be written at the present time, in view of the fact that the exact delimitation of this group is so far from being attained. Different alienists employ the term to denote groups of widely different range. It would seem hard, then, to write on the treatment of cases, when the kind of cases referred to is not first of all specified. The difficulty, however, is more apparent than real, as will appear in the course of this article. The principles, which determine the treatment of the disease, will indicate the nature of the cases to which the term is applied; these principles will remain valid, even if some of the cases should, on systematic grounds, be referred to other groups by different authors. Nor is it inevitable that, in the present state of the subject, differences of opinion as to the essential nature of the disorder should lead to divergence in the views of treatment. It is true that one physician may regard as of secondary what another regards as of primary importance; and there may not be sufficient facts at hand to demonstrate conclusively what is the fundamental process. All, however, can agree that treatment of the symptoms is indicated, and that it need not be postponed until the exact relation of these symptoms to the hypothetical fundamental process is traced.

Those who postulate a biochemical process at the root of the disorder can hardly overlook the advisability of trying to modify, by methods which are not directly determined by any biochemical hypothesis, the disorder which exists at higher levels of the patient's activity, *e.g.*, at the level of his activity as a social unit. As in the case of a fallacy, one may admit that the subtle underlying processes are not identical with those occurring in correct thinking, but still not attempt to alter the situation by trying to modify directly the assumed fundamental brain process.

Those, on the other hand, who lay great stress on the gradual distortion of the patient's higher adjustments need not feel bound to neglect physical symptoms, which are open to modification by treatment of an elementary nature; one may emphasize the importance of certain instinctive trends, and substitutive activities, and still give a cathartic.

Accurate knowledge of the causation of symptoms is the only satisfactory guide to rational treatment, and the result of treatment, instituted on the grounds of more or less well-founded hypotheses, is an important method of testing the value of such hypotheses. It can hardly be claimed that, with regard to the nature of dementia præcox, the therapeutic criterion has proved of great value. In dementia præcox, as in general paralysis, the clinical picture is polymorphous, and spontaneous variations in the symptomatology are sufficiently common to make one chary in attributing a change in the patient's condition to the method of treatment adopted. The exact manner in which the treatment influences the condition is usually obscure, and the result is capable of more than one interpretation. Clinical knowledge is not sufficiently advanced to enable one to outline in dogmatic form a system of treatment. In the present state of the subject it seems more appropriate that each author, stating his views as to the nature of the disorder, should outline tentatively the measures by which he considers the disorder most likely to be modified after it has developed, and the directions along which preventive measures promise the greatest measure of success.

Nature of Dementia Præcox.—Two very divergent views as to the nature of dementia præcox exist without it being possible, apparently, for those who hold these views to come to a good understanding with each other. Mutual discussion does not lead to any progress owing to the want of common ground. Each side admits, to a large extent, the facts which the other side presents. The adherents of Kraepelin are beginning to admit that the facts presented by those, who have been influenced by the work of Jung, Freud, and Adolf Meyer, may be true, but stoutly declare that they are *irrelevant;* the other school admits that physical symptoms form an important part of the clinical picture, and that these deserve to be studied in relation to the problems of disordered glandular activity and metabolism, but maintains that the formulation of the disease in terms of such anomalies is a quite *inadequate* conception of the disorder. It is easy, therefore, to understand how those who say "irrelevant" and those who say "inadequate" never come really into contact with each other.

To those for whom a minute psychological[1] analysis of a case is merely a great deal of irrelevant gossipy detail the question of treatment resolves itself into a biochemical problem. How far we are from the solution of the problem, stated at this level, is evident from Kraepelin's formulation of what he conceives to be the fundamental process. He says that it is most plausible "in view of the relation of the sickness to puberty, to menstrual disorders, to the reproductive function, to the climacterium, in the absence of any ascertainable external cause, to think of an auto-intoxication, which *possibly might* stand in *a more*

[1] The term *psychological* is frequently misunderstood, as if it referred to processes, which had no relation to general biological activity; as a matter of fact a *psychological* analysis is merely a more complete statement of a series of phenomena, which physiology or chemistry treats in a more elementary, *i. e.*, more abstract way.

or less distant connection with *processes* in the sexual organs. (The italics are mine.)

How can one treat a disorder with regard to the nature of which we have so shadowy a conception? The treatment, as outlined by Kraepelin, bears no direct relation to the hypothetical disorder of metabolism, but is merely directed toward maintaining the nutrition of the patient by the usual methods, procuring sleep, managing the excitement, and in the quieter phases furnishing suitable occupations.

No suggestion is made by Kraepelin as to the possibility of modifying the disorder by treatment at a higher level than that of biochemical processes; it is true that such a possibility is implicit in his brief reference to the beneficial effect of occupation in preventing the development of an absolutely apathetic dementia. Kraepelin ignores the relevance of studies bearing on the actual meaning and development of the delusions, hallucinations, and bizarre activity of the patients, and contents himself with a formal description of these symptoms, without making an attempt to analyze their content, or to understand their genesis in relation to the dynamic forces of the individual's personality. The symptoms thus remain odd and unintelligible phenomena, detached from the general biological adjustments of the individual.

The most serious criticism which one is entitled to make of the attitude of Kraepelin is that he has, on the basis of a vague biochemical hypothesis, thought fit to reject as irrelevant a vast mass of material, illuminating the real significance of the disordered reactions of the patients. It is this material which furnishes valuable indications for treatment and for prophylaxis.

TREATMENT DURING THE EARLY STAGE

In the early stages of the disorder a great deal of valuable time is apt to be lost. The patient may show a few eccentricities, there may be one or two disconcerting episodes, the parents may have noticed in general that there is some insidious change progressing, but, in the absence of acute symptoms, they are apt to consider that there is no necessity for calling in a physician.

Early Symptoms.—In many cases the general practitioner, with the meagre training at present supplied in the course of his medical education, is quite at a loss in the face of symptoms, which he has not been taught to interpret. He is apt, therefore, to prescribe a rather general mode of treatment; he may suggest cessation of school work or of the usual occupation, recommend a change of scene or a sea voyage, give general directions with regard to suitable food, attention to the bowels and to the amount of sleep. He may go no farther than this treatment, and take no steps in the direction of making a specific analysis of the symptoms, with a view to dealing with whatever disorder is lying beneath the surface. It is only when, in spite of satisfactory general hygiene, the symptoms have become more prominent that a special

opinion is sought. This loss of time at a stage when most is to be expected from treatment is very much to be deplored; what can actually be attained by judicious treatment, instituted on the first appearance of ominous symptoms, is difficult to determine exactly, for no thoroughly satisfactory material is at hand. Such a material can only be accumulated, when prejudice shall to a large extent have disappeared, and when modern methods shall be employed in the incipient stage of the disorder; no time will then have been lost in the endeavor to charm away a special disorder by vague general treatment. It is to be hoped that more satisfactory education of the medical student in the treatment of mental disorders will enable the physician to recognize at an early stage the seriousness of certain symptoms, and make him feel his responsibility in dealing with them immediately, or calling in someone more experienced to advise him as to treatment.

The early symptoms of dementia præcox are apt to be vague, somewhat scattered in their nature and apparently trivial. It may be that the patient has become less energetic at school and suddenly shows great diminution in the power of application to his studies, or the patient may show a sudden, or gradual, change of attitude toward his parents and appear to be strangely moody. Instead of enjoying frank intercourse with his comrades the patient tends to become rather seclusive, to keep to himself or herself.

In some cases headache is a persistent early symptom. The headache is frequently of a somewhat particular nature, with peculiar feelings which the patient finds difficulty in expressing. The patient may complain of odd physical symptoms and pay unusual attention to the bodily health, taking up enthusiastically some health fad; there may be an unexplained development of interest in certain odd studies, or religious doctrines.

Sometimes nothing unusual is noticed until a rather dramatic episode calls attention to the existence of some form of disorder. The patient may behave in an erratic way at a party, or perhaps leave the bedroom at night to wander around in night attire.

The number of possible deviations of conduct, which may occur at this stage and attract the attention of the relatives, is, of course, very great. The important point is that in each case the actual occurrences, the definite concrete experiences, have to be thoroughly gone into, and an attempt made to trace them to the disturbing forces. In some cases the patient is able to tell the physician frankly about the difficulties in his life, and has considerable insight into the nature of the symptoms; in many cases the physician needs to be able independently to interpret the symptoms, the meaning of which has largely escaped the patient. The aim of the physician is to guide the patient to that appreciation of the symptom which enables him to realize that the symptom is only an attempt at biological adjustment, that it is not an absolutely meaningless experience, quite alien to his personality, but that it is the resultant of forces which can perhaps be definitely traced. The fact that these forces are sufficiently powerful to interrupt the

orderly conduct of the patient's life by the intrusion of the morbid symptoms, is sufficient evidence of the necessity of dealing in a clear purposeful manner with these forces and of not ignoring them as trivial. The fact that these forces have come to the surface, not in their own simple form but in a distorted manner, becomes to a certain extent intelligible when we realize the factors which tend in the direction of the repression of the frank manifestation of such elements. These principles are familiar to the psychopathologist; they are the very basis of the treatment of the psychoneuroses, but their validity does not end there. In the treatment of dementia præcox in the early stage they are of the most fundamental importance.

Special Factors to be Considered.—The special treatment of a case, as opposed to the general hygienic management, consists in the interpretation of the individual symptoms, in their resolution into component forces, and in dealing with these component forces in a healthy manner. The physician has to consider the numerous factors which have influenced the development of these forces, the constitutional traits of the patient, the education in the widest sense of the word, the influence of the home and the wider social environment, the actual conflicts in the life of the patient, the nature of his interests, the sources of his satisfaction. Some of these factors are still operative; others appear to belong to the past, but are found to have relations to the roots of the sickness, which must be clearly realized by the patient as well as by the physician.

Constitutional Traits of the Patient.—The actual meaning of the morbid reactions and experiences, which tend to occur, and of the special trends which are attaining undue prominence, must not be allowed to remain obscure and beneath the vision of the patient. The patient must realize the grounds on which forces tend to be disguised from his own clear consciousness, and must have the courage to recognize that he has within him springs of action, the biological roots of which are not difficult to trace, although he may have been accustomed to consider them as belonging to a vague and mysterious realm. He must overcome the feeling that certain things have to be put out of sight at any cost and treated as non-existing. He thus may learn that these residual trends can be simply and honestly faced and frankly recognized, and thus deprived of their pathogenic force, so long as his general activity is dominated by healthy ideals. The unfortunate idea that high ideals require the individual to shut his eyes to certain residuals, has to be constantly met and corrected. The biological truth that these higher ideals are merely the fullest evolution of more elementay instincts, and that in the former these more elementary instincts obtain a more adequate expression, and that there is no necessary conflict between the two, representing as they do two different levels of evolution, has to be realized by the patient.

In encouraging the patient to look in a simple, honest way at the actual instinctive forces in his nature, one is in no way making him indifferent to the claims of the higher forms of activity; on the contrary,

these latter have to be kept vigorously in front of the patient, not as an evasion of difficulties which the patient is afraid to face, but rather as the full solution of difficulties, which are apt to be met at too low a level. The whole aim of the physician, therefore, is to enable the patient, unhampered by obscure impulses and experiences to direct his activities along biologically sound lines. (The physician has not only the negative task of removing the fear of the instinctive, he has the positive task of encouraging the growth of useful habits of activity along the right lines.) For this purpose one has to understand the individual capacity of the patient, and find in what direction healthy interests are most likely to be cultivated with success. The natural gifts of the patient require consideration, and too rigid an idea as to the limits of individual idiosyncrasies must not be entertained.

In endeavoring to facilitate the readjustment of the patient, the physician has to carefully investigate the subtle influences of the home environment, the occupational activity of the patient, his general interests, his recreations, and his social relations.

Home Environment.—A study of the home environment may reveal not only important childhood roots of the present difficulty, but actually present factors which stand in the way of readjustment. Even in the structure of the mental life of the normal adult there lie, at a deep level, residuals from the childhood period, when the parent is the object of an affection which contains many elements subtly blended; in the adult these residuals can be traced in dreams, in waking phantasies, in the direction of the adult love, and in other ways. In some patients these elements attain such prominence, that the relation to the parent may appear in the centre of the disordered manifestations.

Wherever the attitude toward the parents becomes peculiar, or odd ideas are expressed with regard to them, the physician should trace the origin of this symptom, in order to see how far it depends upon circumstances, which still may be modified. Often it can be brought into relation with faulty and injudicious early training, and valuable hints as to prophylaxis are obtained from the study of the case; sometimes it is found in the setting of a family situation, which to a certain extent may be open to modification. It is obvious that any such task must be approached with the greatest delicacy. Even should the physician see clearly the mechanism of the symptom, he may not consider it advisable to put his views as definitely before the patient. The age of the patient, the educational level, the degree of contact with and confidence in the physician, the ability to assimilate unfamiliar ideas, must all be carefully weighed. Frequently the physician will find it most judicious to avoid complicating the patient's mental state with explanations that will be ill digested; he may, however, remove the patient from the care of an injudicious and devoted mother, or from the home of a father with whom the patient finds himself strangely at odds. It may be other members of the family, who form the difficulty; thus one patient found he could not concentrate, when his sister was in the room, her presence caused a rush of blood to the head. The

symptom could be traced to early sexual experiences, in which she had taken a part. The extent to which an analysis should be carried in the individual case, and whether the situation should be modified with or without the enlightenment of the patient as to the meaning of the special symptoms, cannot be determined by any general rule, and must be left to the tact of the physician.

In many cases it will be found advisable to remove the patient from the family environment, and place him under the care of some competent person, with whom the patient has not been in too intimate relationship. It is probable that in these cases part of the benefit of treatment in a hospital lies in the elimination of the problems of the home environment.

Social Environment.—The general social environment of the patient, his friendships, recreations, hobbies, occupations, require to be reviewed with care. In his relations to his fellows the patient, as a rule, from early life has shown certain peculiarities, the most characteristic of which is a want of frankness, a tendency to be somewhat "shut-in," and obstinate. In the early stage of the disorder these features may become accentuated, before any striking episode has attracted the attention of the relatives; the change in the patient's attitude toward his friends may often be found to have very definite roots. On the other hand it is not rare to find a sudden infatuation for one of the same, or one of the other sex, which may express itself in rather bizarre ways. At the basis of such an infatuation for persons of the same sex frequently lies a definite homosexual trend, which may become more prominent in the later course of the disorder. The trend may show itself in somewhat disguised form, as when the patient feels that the other person is hypnotizing him or otherwise exerting undue influence over him. The careful study of the patient's history at this period demonstrates the fact that the adjustment with regard to the sexual instinct is one of the most critical factors in the patient's general balance, and that many of the symptoms have a very close relation to some difficulty in this sphere.

Sexual Instinct.—The influence of this factor may be seen in a more or less diffuse change of mood or behavior, or in some specific episodes. In any case the fundamental disorder has to be realized. It is important to understand that the disorder is, as a rule, not due to a gross anomaly of the sexual instinct itself, but to the manner in which the personality as a whole has reacted to this element in the constitution. The influence of this factor may also be traced in many physical complaints and special interests; the patient may harp on constipation, study his motions, try and purge his sytem by cathartics or cleanse himself by fasting, or perhaps an imaginary tapeworm engrosses the attention. Health fads are apt to be taken up eagerly and defended by the use of opinions borrowed from popular works; the patient may throw himself into athletics with an enthusiasm, the source of which may be little suspected. It is essential that the physician should trace the source of these interests; it may be possible to bring the patient

to do the same, and then encourage him to face his difficulties at the level at which they actually arise.

The attitude of the adult toward the domain of the sexual instinct is the product of forces which commence to act during early childhood. The extreme degree of mystery which, as a rule, surrounds the whole topic, brings the child at an early age to keep these elements out of the realm of clear thought and frank discussion, and gives them an artificial secondary emotional value. Various associations which cluster around the sexual instinct (*e. g.*, in relation to micturition and defecation) are apt to lead to symptoms of a peculiar nature, and they do so without the personality being clearly aware of the meaning of the process, or being accustomed to frankly realize and manage these factors.

In view of the many misconceptions with regard to the role of the sexual instinct, and of the divergence of views as to the management of symptoms, directly or indirectly related to that instinct, it may not be out of place to discuss this topic in further detail. In treating the patient the same views may require to be clearly placed before him, and it frequently appears that the help thus obtained is of considerable practical importance.

By means of such analysis the patient is brought to take a vigorous, common-sense attitude toward his own difficulties. He is encouraged to abandon the habit of shrinking from the recognition of the crude factors in his nature, and of making use of various evasions, in order to compensate for what he has felt to be very unworthy and degraded. The amount of benefit which the patient may derive from being brought to adopt this frank wholesome attitude, will depend upon the extent to which the patient's life has been already disorganized; too often, by the time that the patient comes under treatment, little can be hoped for along this line. In any case, however, where the patient is in a condition, which enables him to be in touch with the physician, explanations along the lines laid down above, are worth giving. It is worth while to place frankly before the patient the true facts with regard to the sexual life, as to which childhood ideas may still be dominant. The patient must learn to place at its true worth the habit of self-abuse, which has so frequently been an incident in the course of his devlopment. He must learn that in childhood the usual social standards have little personal force, and the child's affections are drawn, regardless of these standards, to father and mother, to brother and sister, and in some cases to those of the same sex. These early trends have not been absolutely eliminated, as the child passes into the adult and accepts the usual standards of his social environment. They have merely been repressed and still remain as partial trends in the complex structure of the individual, and they sometimes have sufficient force to disturb the balance of the individual, if they are reactivated by special incidents.

The physician is frequently asked whether marriage is to be recommended as the solution of some of the difficulties of the patient; to recommend marriage would be to still further complicate the problems

of one who has already shown himself unable to meet the simple problems of his individual life.

Many consider that any attempt to dwell on the development of symptoms in relation to the sexual instinct must be harmful to the patient; they hold that the topic should be left alone as unsavory, and likely to disturb the patient. No one, however, who has been accustomed in a frank straightforward manner to analyze the symptoms of disease, no matter what their source might be, is likely to take this objection too seriously; and whoever has seen the relief, which in some cases the line of treatment outlined above affords, is not likely to withhold his assistance in suitable cases, on the ground of personal distaste for such a task.

The preceding remarks may seem to lay a disproportionate emphasis on the role of the sexual instinct, but the subject has excited much controversy, and therefore requires to be formulated clearly.

It is frequently assumed that any emphasis laid on the psychoanalytic, or better *psychosynthetic*, method of treatment means the neglect of other considerations; the assumption is, however, without foundation. The endeavor to restore the balance of the patient's interests and activities has a more positive side.

Cultivation of Healthy Activities.—Everything must be done which will cultivate healthy activity in the individual, activity which is sufficiently practical and at the same time suitable for the patient. Special aptitudes and tastes must not be ignored on the one hand, but on the other hand must not always be given the prominence which the patient craves for. As an example may be quoted the case of a young woman, who was anxious to take up as her occupation either music or nursing in a faddist physical culture place; both of these choices were obviously determined by factors intimately connected with the development of her previous symptoms, and were therefore discouraged by the physician. He persuaded her to take up a more commonplace occupation, which would give her healthy interests, bring her into daily contact with other employees in an atmosphere of collective industry and not afford her a somewhat dangerous substitution for the trends which had bothered her. As a rule one would recommend to a patient commonplace occupations, occupations which demand well-regulated activity, where definite tasks are completed and concrete results obtained, and where the relations with the other workers are fairly close. Pursuits such as esthetic callings, religious activities, literary activity, etc., are not to be encouraged as the main occupation of a patient. Not only must the occupation be suitable, it is important that in his wider relations to his fellows there should be a frank and healthy attitude. Frequently the patient through his own trends has become somewhat isolated. He has few friends, he spends his spare time alone, his friends make few demands on him to join them in their recreations, and in this way the shyness of the patient becomes progressively worse. He is out of contact with his fellows, he loses the chance of the constant criticism, which forms part of frank intercourse and prevents the

attitude of the individual becoming stereotyped and intolerant. The absence of this healthy criticism and frank exposure of his ideas in ordinary intercourse is one of the factors which permits later the creation in the patient of a personal system of ideas and reactions.

It is advisable that some person of tact and of some authority take up the supervision of the patient's activity in a way that the physician cannot do from a distance. The difficulty created by the patient's isolated attitude may, perhaps, sometimes be best met by affiliation with some regular social organization, and from this point of view organizations such as the Young Men's Christian Association and the Young Women's Christian Association may be recommended owing to the variety of their activities. There is no better place for becoming frankly acquainted with one's fellows than on the tennis court or the golf links. The cultivation of some game must be recommended. Here again the retiring disposition of the patient and his instinctive avoidance of frank meeting with his fellows, with the feeling that he is rather inferior to the others and will be recognized as such by them, has to be overcome.

TREATMENT AT A LATER STAGE

When the symptoms of the disorder have declared themselves to a well-marked degree, the question of the management of the case at home becomes much more difficult. The patient not only lives in a world of his own, but projects his emotions and interpretations into the world around him, and is apt to act in accordance with his interpretations; his ideas of persecution and of malign influence make him frequently a danger to his environment, while on the other hand an infatuation for another person may be an equally serious social embarrassment. The patient may not show distinct antisocial traits, but still may show such anomalies of behavior as to make it impossible for him to live in his usual social environment. It is an important practical decision to make, whether one shall endeavor to continue to treat the patient at home or whether one shall change his environment, either to some house suitably arranged for his benefit or to some ~~regular~~ hospital. To a certain extent the decision is determined by purely practical considerations, such as the home conditions of the patient, the tolerance of his neighbors, the size of the community in which he dwells, the ability to make certain modifications in the usual household economy, etc.

In a small country community anomalies of behavior may be tolerated, which in a crowded city tenement would immediately lead to conflict with the environment. One advantage which obviously belongs to the home environment is the possibility of keeping alive the manifold interests of the patient. To remove the patient to the somewhat monotonous environment of a hospital may seem to take away the opportunity of cultivating these external interests, which are of the greatest importance in treating the disorder. Such a view, however,

is based largely on the old-fashioned asylum conception and does not take into account the atmosphere of the modern hospital. In addition, it is important to remember that while hospital residence may not be an ideal permanent solution of the problem it may be a very important help, if taken advantage of for a season. The simple, uniform life of the hospital has a very useful effect, tending as it does to curtail the eccentricities of behavior, which are apt to become more and more marked. The suggestive influence exerted by the atmosphere of the hospital is very considerable. The necessity of submitting to a reasonable routine may occasionally be irritating, but on the other hand it is an important external aid toward the regulation of conduct. In addition to the advantages of the general hospital atmosphere, there is the important advantage of the physician being able to have the patient under continuous observation, to study in detail the symptoms, to trace their meaning, to try and bring his interpretation within the patient's own horizon. The close association with the patient enables the physician to make use of those favorable periods which occur from time to time, when the patient is really accessible and likely to be influenced.

General Outline of Treatment.—With regard to the general outline of treatment, the same principles are valid as in the earlier stage. The patient, however, is less likely to be quite so closely in touch with the physician as during the earlier stage and, frequently, the treatment has to consist rather in the management of the patient than in the modification of those processes which lie at the root of the symptoms. The aim of the physician is to prevent the patient from shutting himself up within the fixed walls of his own mental system. He aims at preserving those healthy balancing interests which keep a man in a healthy relation to his fellows; at the same time he tries to weaken the influence of those disorganizing forces, which express themselves in the behavior and morbid experiences of the patient. To keep the patient from getting out of touch with his fellows it is extremely important that anything, which shows a loss of sensitiveness to the ordinary social amenities should be persistently looked after. Any carelessness in dress, any laxness of behavior at the table, should be corrected as far as possible, and the patient should not be allowed to adopt any slovenly manners, which are apt to be a further step in the general disorganization of his habits. The general routine of the patient's daily activity should be made as stimulating as possible, and there should be as little time as possible, during which the patient is left absolutely to himself to lose touch with his fellow-beings. The daily activity should include sufficient exercise in the open air for the sake of the general bodily hygiene, but it is very desirable that exercises in the open air should not be a mere dull routine stroll with slouchy gait and downcast head. It is important to interest the patient as much as possible in the forms of activity which require attention and which evoke interest, and for this purpose occupations and games have probably a considerable value.

The treatment of the disorder, even when fully established, can be considered as following the two main lines indicated in the treatment of the early stage, (1) the direct modification, where possible, of the distorted mental trends, and (2) the cultivation of those interests which keep the patient in healthy contact with his environment. There is the more specific treatment at the psychological level, and the more general treatment by means of occupation and measures of general hygiene.

Treatment at the Psychological Level.—The aim of treatment at this level is the reëducation of the patient, making it possible for him to bring obscure complexes into the corrective atmosphere of clear thought and purposeful activity.

The principles underlying the treatment of the patient at the psychological level are frequently sadly misunderstood. It is not suggested that the physician should take up the delusions and hallucinations, and the morbid activity of the patient, and demonstrate the logical fallacies involved in the former and the practical absurdity involved in the latter. To adopt such a method would be to fail to realize the deep-seated roots of our higher activities. The physician has, first, to get as full a statement as possible of the morbid experiences and anomalous behavior of the patient. In this first step it is extremely important to pay attention to many apparently minor points, which are frequently too elusive to enter into the clinical record, unless it is extremely full; thus the tone in which certain remarks are made, the glance which accompanies them, the hesitation which precedes some expression, the gesture which interrupts or accompanies a phrase, the change of expression which flits across the face of the patient without being accounted for by the utterances of the conversation, the slight flushing, these are all features of the patient's reactions, which are of very great clinical value, and which often indicate unmistakably the origin of some delusion, which, without the accompaniment of the detailed setting, would appear quite unintelligible. They are just as much a part of the complete reaction of the patient as the actual delusions which the patient expresses. The morbid experiences of the patient, in the light of this setting, are frequently seen to be the distorted expression of trends, which the patient's conscious personality vigorously rejects. It has been already sufficiently emphasized that the rejection of such trends, with their reappearance in this disguised manner, is due to the attitude which the personality takes toward certain factors in his nature of great biological importance. The fact that this unhealthy method has been adopted, namely, the complete rejection with substitutive reappearance of the trends, is due to the inability of the individual, partly through lack of necessary education, to reconcile the more elemental tendencies of his nature with those activities of ethical value, with which he identifies his personality.

The physician should keep in mind, even in the presence of a serious clinical picture, the possibility of doing something in the

way of educating the patient to see that elemental forces may exist at the roots of his personality, and yet be taken up into the personality and assimilated in a healthy way, without there being any necessity of giving up his accepted ethical standards.

Analysis of Symptoms.—All sorts of unworthy impulses find expression in the delusions and hallucinatory experiences of the patient, and the aim should be to try and get the patient to honestly face the fact that these impulses are really a part of his own structure. The patient has to learn that these morbid experiences come, to a certain extent, from having carried into the adult life the bogies of his childhood. To bring these bogies into the sunlight of clear, honest thought is to treat the disorder in the only hygienic manner. The endeavor is made to carry the patient along with the physician during the analysis, and to make him realize that what is of importance, is not so much that the physician should understand the symptoms, as that he himself should understand them. The understanding requires effort and courage. Each interview with the patient should have a prominent note of encouragement, and the patient should feel that the talk is not a mere dry discussion, but is an analysis of vital personal functions. The interview cannot be successful if at too cool a mental temperature, there must be a certain warm enthusiasm. It is important that the interviews should follow at sufficiently close intervals, in order that the impetus gained from one interview may not be frittered away before the following one is entered on.

A certain amount of tact is required to notice when one is going too far beyond the capacity of the patient, and care must be taken not to arouse an antagonism and an indignation, which may lead to the physician losing touch with the patient. It is, therefore, better not to express in too direct a form, at a premature stage, conclusions which may be strikingly evident, but which the patient is not yet prepared to accept. The patient should, as much as possible, be led to develop spontaneously his own associations and to bring forward enough material to furnish a solid basis, upon which the physician can take his stand in putting his interpretation before the patient. The patient is thus, step by step, brought to a point where the interpretation of the physician is able to be placed before him as if he himself had arrived at it. He may not be able to accept the conclusion and to take it up into his personality; but even although this result cannot be hoped for, the fixity of the delusions and the certainty of the external reference of the hallucinations may be to a certain extent modified, and there may be occasional periods when a modest degree of insight is obtained. It is doubtful whether we have as yet sufficient clinical experience along these lines to enable us to state definitely how far the progress of the case may be modified by this line of attack. It is, however, justifiable in each individual case to do what can be done along this line.

How far an analysis of the symptoms may benefit the patient cannot be accurately foreseen, but that it is sometimes of great use in removing

certain symptoms there is no doubt. A young woman, who had passed through a definite catatonic phase, was left in a stationary condition in which she maintained the truth of numerous delusions, and showed considerable difficulty in adjusting herself to the actual facts of her life. She had numerous somatic complaints, and among them a severe pain in the region of her left shoulder. She had sustained an injury to the shoulder, previous to the onset of the psychosis, by her lover having suddenly raised her up by putting his hands under her arms. For several months she had received medical treatment for the injury and the whole episode had been of great emotional value, and closely connected with the onset of her mental disorder. Examination of the shoulder showed a slight atrophy of the muscles, but no reaction of degeneration, and there did not seem to be any adequate reason for the persistence of pain. Only after many interviews did the patient admit that her acquaintance with the young man had not been of a purely casual nature, and that she had really had a profound affection for him; this had been followed by deep disappointment when, after causing her injury and financial distress, he had left her without taking farewell. The patient had refused to admit to herself how much this individual meant to her. She did not face frankly the fact that her moral pride had been severely wounded, and the pain, which arose from this source, she unloaded altogether on a physical condition, which in itself did not appear an adequate cause for the pain of which she complained. As a matter of fact, as soon as a complete examination had been made, and this interpretation had been placed before the patient, she no longer suffered from the pain, which had bothered her for many months. It seemed probable that in this case the pain was due to the same mechanism as that of hysterical conversion, and this mechanism is responsible for the origin of many of the physical symptoms in cases of dementia præcox. The whole setting of the mechanism, however, is not quite the same, so that one cannot hope to have the same success in relieving the symptoms by an analysis as in cases of hysteria. It is always, however, desirable to see what can be done along these lines.

In many cases difficulty with regard to taking food, or with regard to the retention of it, arises in the same manner. Peculiar feelings in the throat, a feeling as if there were some object in the throat, the necessity of bringing up saliva and mucus, nausea, and persistent vomiting, often are the physical symbols of an unsatisfactory adjustment of the sexual instinct. Other bodily feelings, frequently referred to as pains or electricity, or attributed to wireless influences, or hypnotism, or other occult mechanisms, are often merely sexual feelings more or less thinly veiled; although frequently referred to the head or chest, they can usually be traced to the region of the sexual organs.

Readjustment.—In some cases the endeavor to bring the patient to face frankly the actual meaning of the morbid experiences is met with an unemotional rejection of the explanation, which cannot be modified. In other cases it stimulates the patient to an indignant and irritable

rejection, arising from the unwillingness to tolerate the suggestion of the presence of these elements in the patient's personality, to which the sickness is an unhealthy adjustment. In those cases, where there is a definite emotional reaction, improvement by tactful reëducation may be hoped for; in some other cases improvement takes place spontaneously, whatever be the factors that determine it. A young woman, who was persecuted by voices suggesting love to her, in the course of her treatment admitted that it was a state which one got to like. The numerous bodily feelings, which had formed a part of her morbid experiences, were to a large extent of definite sexual nature. As she improved, she realized that these were products of her own ruminations, and herself referred to them as absurd. Another patient admitted that she was, in part, responsible for the morbid experiences, as they had developed out of day-dreams which she had deliberately encouraged; they had, however, attained an independent existence.

The physician aims at encouraging a readjustment, by counteracting the tendency to rumination by means of healthful occupation, and by refusing to permit the patient to give an undue reality to her experiences by letting them go without criticism. The morbid experiences may be the expression of perverted instinct, or of the persistence of childhood trends. A young man had an attack of excitement, in which he was dominated by the idea that he was persecuted by his fellow-students blowing "love powders" at him; he had already shown evidence of a homosexual trend in an infatuation for the director of the Christian Institute where he was, and later by an infatuation for a musician, and during the psychosis this trend was also indicated by the role played by certain hypochondriacal ideas as to a tapeworm. If the physician cannot bring himself to deal with these factors in a healthy objective way, it is obviously too much to expect that the patient, who has to deal with abnormally strong elements, and who is probably constitutionally less able to assimilate these instinctive factors, can arrive at a healthy adjustment unaided.

It must not be assumed, however, that an adjustment is only attained by purposeful means; the patient may pass through a period, where the upsetting factors come in glaring form to the surface, and yet return to comparatively good health, without obtaining any true insight into the nature of the period through which he has passed. In view of the fact that such spontaneous improvement may occur, some may question the desirability of trying to bring to the conscious level of the patient those factors, which are so upsetting. One obvious reason why the attempt should be made, when it can be done judiciously, is in order to put the patient into such a condition, that he will be less liable to the recurrence of such an episode. Where the readjustment has taken place in the dark, the patient is obviously just as much at the mercy of the unknown balance of forces as before the first attack. To be content with this equilibrium, is to leave entirely to chance the future health of the patient, which often has been disturbed without any adequate cause appearing on the surface. It seems natural to

suppose that, should the patient realize what the actual important factors are, he will not be so much at the mercy of casual occurrences, and when he does feel that his equilibrium is being altered, he will be able to deal with himself in a much more purposeful manner. It may be also of importance to give the relatives some information which may help to safeguard the patient. Thus a boy with a well-marked dementia præcox, in which a mother complex was strongly prominent, had been brought up by his own mother with an amount of affectionate caressing, which was undoubtedly unwise. In such a case it seemed wise to inform the mother that the sort of sweetheart relations, which existed betwen them, were not exactly the most beneficial, in view of the temperament of the patient. How far in some of the cases there is an exaggeration of the crude sexual instinct, or some glandular anomaly, as distinct from a defect in the higher elaboration of the sexual instinct, is not easy to determine. It does not appear, however, that there is any marked anomaly at this level, such as might beneficially be modified by drug treatment. A moderate dose of bromide at night, especially when the patient complains of insomnia complicated with erotic ruminations or sexual feelings or distortions of the same (electricity, etc.), may be tried for a period. A cold bath or cold sponging at night before going to bed is often serviceable.

Effect of Analysis.—A thorough analysis of the morbid experiences of the patient may be not only of benefit in removing, or modifying the force of certain physical symptoms, and in allowing the patient to deal with factors more clearly known, it may also help to modify the attitude of the patient toward the persons of his environment. It may help to modify the relation of the patient to near relatives, to husband or wife, to parents or children, and it may also reveal to the patient the roots of certain barely suspected jealousies and antipathies, infatuations, etc. It may also enable the patient to understand the origin of certain enthusiasms, apparently purely intellectual or esthetic or religious. Some patients, who have been for many years involved in the mists of Christian Science or other extravagances, and who discuss everything in vague philosophical and intellectual terms, may be enabled by persistent analysis to reduce their ideas to what appears to them to be a very common denominator, but which is at least close to the actual dynamic roots of their difficulties.

Some patients have a rather surprising insight into the general substitutive meaning of their disorder. A childless woman, who had passed through a period of theosophical study into a period of grammar study, in which she would walk along the street engrossed in the study of words, herself said spontaneously, "Oh! I know, if you have seven children you don't need to worry about William James." She showed that she was aware of the difficulties at the basis of her unhygienic adjustment, but she had not had at her disposal, apparently, the means for adopting a more sound, if more commonplace, solution. In this case, during a prolonged period of inaccessibility to her physician, her theosophical adviser was encouraged to see her; in accord with

the rather sensible advice he gave her, which included the recommendation of cordial coöperation with the physician, the patient showed an abrupt transition to a mildly elated state, in which she was much more open to treatment, so that within a comparatively short period she was able to leave the hospital.

The above outline of treatment assumes a certain degree of coöperation on the part of the patient. In the large number of cases where no coöperation is given, the physician is still able, by his interpretation of the symptoms, to realize the meaning of the whole process, and in the management of the case to avoid what might be danger points. Individual cases vary so widely that no detailed directions can be given in this respect. The special morbid experiences of the patient have, therefore, to be reckoned with as factors, which call for tactful management rather than for fundamental modification. It must not be assumed that, because the delusions of a patient spring essentially from certain internal factors, that there is no use in modifying the environment in certain directions. The patient may be particularly difficult to manage, because certain factors in the environment have a special emotional value in relation to the complexes of the individual. A patient may have an intense antagonism toward another patient, or toward a particular nurse; he may show special dislike to certain varieties of food, or look upon certain things as special evidence of persecution. It should not be assumed that it will be useless to change the nurse, or modify the food, on the ground that the patient will certainly have the same dislike for other nurses or every form of food. The antagonism to a nurse may arise on the ground of certain associations, such as a casual likeness, or the memory of a particular event with which that nurse was associated, or a peculiarity of the nurse's name; a change of nurse may prove to be of the greatest help in the management of the patient. Similarly, an incompatibility with another patient should not be ignored, and the transfer of one or the other to a different ward is worth carrying out. The reaction of a patient to one physician may be quite different from the attitude to another, and it may be advisable to hand over the case to a colleague who, for one reason or another, may have much more influence with the individual patient.

Treatment by Occupation.—While it is important, wherever possible, to direct one's treatment to the specific disorder in the way outlined above, it is a great error to assume that the treatment ends here. The mere analysis of symptoms, if not accompanied by constructive suggestions, might tend to increase the ruminations of a patient, exaggerate difficulties by dwelling on them, and complicate the mental state by a subtle explanation, too difficult for the patient to follow. The analysis is merely a preliminary or auxiliary step; it aims at showing the patient that his useful objective activity has been interfered with in a morbid manner by certain factors, which can be dealt with in a healthy manner. At the same time as the basis of his morbid reactions is brought to the clear consciousness of the patient, the necessity of

cultivating to the maximum the propensity for healthy objective work is emphasized. The physician endeavors, by every means possible, to instruct the patient in a healthy daily routine. The difficulty here lies frequently in the distance along which the patient has travelled in the direction of shutting himself off from normal relations with the workaday world. Frequently the patient seems to have no interest in doing anything of an ordinary useful kind.

One of the practical difficulties of the situation is due to the fact, that the nature of the symptoms frequently necessitates treatment in a hospital, where the habitual vocation of the patient has to be given up. To outline a daily routine for the patient is no easy task. The difficulty is much less with women than with men, and much less with those of the working classes, than with those of the leisured or professional classes. In many cases the resources of the physicians and of the institution are sorely taxed to carry into effect the principles, which are clear to them. It is not difficult to furnish the wife of a working man with sufficient housework to keep her busy during a considerable part of the day, but it is another task when one has to devise occupation for an individual, whose education and tastes have led him into no serious concentrated line of work, and whose time has been filled up by the more or less frivolous occupations of the smart set, in which he has lived.

Guiding Principles.—The main principles which guide one in occupation are that the interest of the patient must be aroused, that a certain continuity of effort should be made, that the product of the work should not be meaningless but should have some definite value, and that in its completion it should be likely to furnish some satisfaction to the patient. It must be remembered that some patients are readily fatigued. The simplicity or complexity of the work should depend on the capacity of the patient at his or her previous level, and upon the degree of interest that it is possible to arouse in the patient at the time treatment is started. For women, domestic employment is a useful help, and in addition all forms of handwork are available. The taste of the individual should be consulted to a certain extent, although it may be wise not to indulge a too capricious taste, nor allow a constant evasion of tasks, which are despised because they are ordinary. In some cases the more complex tasks stimulate interest, which cannot be aroused by more simple ones. In other cases the patient may be easily brought to do simple routine tasks, which are along the line of accustomed work, while she would find difficulty in grasping anything new, or which required too much attention.

It is important that the nurses should keep in mind the fact that the occupation is a serious therapeutic measure, and the nurse should never consider that the patient is to be employed merely in order to relieve the nursing staff of burdensome duties. When the nurse looks on occupation from the therapeutic standpoint, she can cheerfully encourage the patient to do work, which she would feel chary about recommending to the patient on the grounds of convenience.

The spirit of the work, therefore, is an all-important matter, and where the spirit is right, there will not be found too great resistance to the adoption even of rather ordinary tasks. A gentleman may refuse to rake leaves, or cut the grass, to wheel a barrow, or dig a plot, so long as he feels there is nothing more involved than the getting of a piece of work done for the convenience of those with whom he is not in too much sympathy. It is another matter when an intelligent attendant cheerfully takes up a piece of work, does it with a great deal of spirit and infects the others with his own enthusiasm. The task then is taken up with some reflected interest, and the patient begins to derive gratification in doing something, which others appear to find of value. The result of the task can be made sufficiently apparent for the patient to see that something has been achieved, *e. g.*, he can be given a garden plot for which he alone is responsible. When the attempt is made to cultivate in the patient the feeling of satisfaction at the accomplishment of a useful piece of work, the beginning may be elementary, but the process can be developed, until in each case the highest level is reached which is possible with the patient.

In women, the simple activities such as bed-making, attention to the rooms, work in the pantry, simple cooking, laundry work, needle work and embroidery, basket-making, raffia work, designing and decorative work, all have their value in the way of indoor occupation; while for outdoor occupation, lawn-mowing, simple gardening, observation of plant life and bird life, care of poultry can be taken up. Male patients frequently are benefited by being encouraged to assist the attendants in the necessary domestic routine, but naturally they have not the same variety of handwork to resort to as women. Indoor occupations for men require to be more definitely planned, and to be more skilfully supervised. Basket-making, broom-making, chair-caning, weaving, mat-making, simple joinery, the manufacture of simple leather goods, clay modelling, all have their value, and it is useful to be able to offer to the patient a choice, so that he may follow more or less his natural bent. Here, too, the spirit of the work must be kept always in mind, and the importance of insisting upon patients taking pride in the completion of a task, and feeling the necessity of working up to a given standard; it is desirable for the individual patient to see that his work counts for something in the general productivity of the department. In some cases it may be possible for the patient to take part in the industrial work of the hospital, in the boot-shop, or the tailor-shop, or beside the mattress-maker; he may perhaps assist the carpenter or blacksmith, or some of the other mechanics. Naturally the possibility of the development of such activities is limited by the fact that it is not always possible to give the patient such work under the supervision of men, who are sufficiently imbued with the nursing spirit, and judgment needs to be exercised in allowing a patient to pass for any prolonged period of time out of the supervision of the nursing force into the workshop of a mechanic. Honest work in the open air is to be encouraged as much as possible, and where a satis-

factory nursing standard is present and the personnel is adequate, it should be possible to have engaged in manual labor a large number of those, who previously have been engaged in many professional pursuits, or been gentlemen of leisure.

Results.—The results of the full development of treatment by occupation are manifold, and it is of the greatest benefit both to the patient and to the nursing staff. It introduces a spirit of activity into the whole atmosphere, which is of distinct benefit to the patient. Not only does it give a healthy outlet for the activities of the individual, and thus tend to restore the general balance of the patient's forces, it fosters in a large number of cases, where recovery is not to be looked for, the cultivation of activities, which may make possible the existence of the individual in a suitable environment outside of the hospital, and thus bring the patient still farther toward the goal of normal social behavior.

Games and Exercises.—The daily routine of the patient should, of course, include enough exercise to keep the body in the best possible condition, and where the patient is not engaged in any fatiguing mechanical occupation, the organization of calisthenic exercises, and of games, is of great assistance. Daily calisthenic exercises are to be recommended and, when these are done in class, it is astonishing how few, even of the apathetic patients, fail to coöperate. The atmosphere of the class, and the spirit of the instructor, have great influence on a patient, and are sufficient to give to somewhat monotonous exercises a considerable amount of interest. One finds that the patients soon appreciate these exercises, look forward to them and take part in them in a manner beneficial to their physical and mental condition.

Calisthenic exercises are perhaps the most universally useful feature, and form a good starting point, from which to pass to elementary and more difficult folk dances, and to exercise involving a certain degree of spontaneity and gaiety, and the spirit of the game. A certain number of patients find the spirit of play something strange, which requires to be cultivated, and games probably have a very considerable value in breaking down certain residuals of shyness and sensitiveness, which only disappear at the temperature of the dance or the game. Throwing the ball (basket-ball or medicine-ball) is useful as one of the first games in developing such interests, and patients soon learn to take part in a number of suitable games, such as basket-ball, tennis, croquet, base-ball, cricket, field hockey, golf, etc. In addition to games, social entertainments are of great benefit, and social dances in winter, and picnics in summer, have each their own place. The feeling of narrowness in a hospital environment is somewhat modified by frequent drives or country walks; automobile rides can be recommended as having an exhilarating effect much more marked than that of a carriage ride.

General Hygiene.—There are no special indications in regard to the general hygiene of the patient. The diet does not require to be specially regulated. In some cases the patient shows a tendency to eat too much, and requires to be somewhat restricted. In other cases a good

deal of coaxing may be necessary to enable the patient to take a satisfactory amount of food. Attention to personal cleanliness needs to be encouraged, and neglect of care may lead to the development of very filthy habits. The patient may urinate and defecate wherever he happens to be, and may develop the tendency to smear the environment with excreta or to throw them out of the window. In many cases the patient remains clean, if taken regularly to the toilet, and a careful nurse finds what are the most suitable times to take a patient. Where the patient shows a peculiar obstinacy in this respect, and persists in soiling himself, a useful measure is the use of daily enemas. Where the patient tends to smear the room at night, an enema in the evening may entirely put an end to the habit, while an enema in the morning will keep other patients cleanly through the day. This procedure not only cuts short the development of bad habits, but when the habit is established, it enables the patients to be managed in the most clean way and with the most economical expenditure of energy. Frequently the patient indulges in bad sexual habits, either secretly or openly. These habits can only be corrected by close and constant supervision, and by encouraging the patient in all sorts of healthy and objective forms of activity. To employ mechanical means of restraint and thus prevent the patient from indulging in autoerotic habits is totally to misapprehend the true spirit of treatment. A mechanical obstacle imposed by an external authority is no substitute for the personal inhibition of the lower instinct.

Treatment of Special Episodes and Symptoms.—In many cases the disorder makes its debut with a turbulent period, in which the main features are motor excitement, irritability, violent outbursts, with evidences of fear or anger or perplexity, when the conduct and mood are in relation to hallucinations and delusions, as to which the physician has only fragmentary knowledge. In this phase it may not be possible to get into contact with the patient; the attempt to do so may simply aggravate the symptoms. Under such conditions the treatment can only be symptomatic, and any analysis has to be postponed until the excitement has spontaneously simmered down. The patient should be treated in bed; if the motor excitement be difficult to control the continuous bath is of great use, or a warm pack of two hours' duration may be given two or three times a day, one being given from seven to nine at night. During the height of the excitement a sedative mixture of bromide and chloral (chor. hydr. 15 grains, pot. brom. 20 grains) may be given with advantage, and sleep induced with the help of a hypnotic (trional 10 to 20 grains, veronal 5 to 8 grains, paraldehyde 1 to 2 drams). The bowels should be kept freely open, and care taken that there is no retention of urine, a symptom which is apt to be overlooked. The patient is apt to be erratic as to taking food, and tube-feeding may have to be resorted to early if symptoms of exhaustion become evident.

In cases of long duration, even although a more or less settled adjustment seems to have been arrived at, episodes of excitement are not

infrequent. In many mental disorders it is easier to avoid the development of excitement by judicious treatment than it is to influence the excitement when it has developed. In dementia præcox, however, the states of excitement are largely of endogenous origin, and not so much due to special circumstances or incidents in the environment. The conditions which determine the onset of the excitement are not always clear. The more closely the physician is in relation with the patient during his quiet periods, and the more he is in touch with the patient during the early part of the excitement, the more probability there is that he will be able to modify it. An excitement is sometimes like the tantrum of a spoiled child, and the patient may have sufficient control to discuss matters with the physician, and to weigh what is said to him. In that case serious expostulation, or the demonstration of the necessity of transfer, may have a beneficial effect upon the patient. Thus the patient may have a violent screaming attack, with loud protests about persecutions and hallucinatory experiences, and may in his anger break furniture, threaten or attack the nurse, and disturb his fellow-patients; yet the quiet but determined statement from the physician that, with such symptoms, he cannot be allowed to remain in his room, but will have to be transferred to a service, where there are other excited patients, and where there are not so many privileges, may be quite sufficient to bring the patient's expressions of discontent within tolerable limits, and the episode may come to an end.

In other episodes the mechanism is not so clear, and the excitement appears to arise at a deep level, and to be beyond the control of the patient. The patient may be much more out of touch with those in charge of him, his activity may be blind and apparently meaningless; sudden attacks or attempts at self-mutilation, extremely noisy utterances with profanity and obscenity, may make him a source of annoyance to others and very difficult to manage. Here, too, the more one knows about the inner life of the patient, the more likely one is to have influence with him, and to be able to modify the condition; one physician more than another may be of special use in this respect. In some cases, if placed in a room by himself, the patient may give vent to his excitement, without requiring any special measures. A warm pack for a period of two hours will probably have a distinctly quieting effect. Should the excitement reach such a pitch, that the patient requires continual restraint by nurses, it is probably better to give a hypodermic injection of hyoscine hydrobromate ($\frac{1}{200}$ to $\frac{1}{100}$ grain) rather than to exhaust the patient and the attendants, and run the risk of physical injury to the patient by constant struggling. It is important that the treatment instituted during a period of excitement should not become stereotyped; the physician must endeavor to guide the patient's activity back into normal channels by offering him opportunities for occupation at the earliest possible period. The tendency for a noisy excitement to develop into a habit is a danger against which the physician must always be on his guard.

Treatment of Conditions of Stupor.—In conditions of stupor, where the patient appears to be absolutely out of touch with his environment and living in a world which the physician cannot penetrate at all, there is nothing left to the physician but to look carefully after the hygiene of the patient. Attention must be paid to the bowels and the bladder, for retention of urine is not an infrequent symptom. The patient may remain motionless in bed, but the development of bed-sores is easily prevented by careful nursing. If the patient refuse to take food for more than three or four days, tube-feeding, either nasal or esophageal should be resorted to. It must not be forgotten that tube-feeding may be woven into the tissue of the patient's morbid ideas, and that it may be a more or less welcome experience to the patient, and one which the physician ought to postpone as long as possible. In some cases the utterances of the patient are quite clear on this point; in other cases they may be disguised. One patient, who was very anxious for the physician to pass that "little red tube" on account of the pain which she claimed it gave her, was dominated by complexes relating to perverse sexual activity. There is not the same necessity for immediately guarding against any reduction of nutrition, as there is in states of excitement and confusion. Massage is a useful aid in maintaining the nutrition of the patient and in preventing contractures, which are apt to develop when fixed attitudes are preserved for too long. Even when contractures have developed, it is usually possible to remove them by a long period of massage. One point to be distinctly kept in mind is that behind the mask of stupor there may be a very alert mentality, and the patient may be registering impressions of all occurrences which are taking place. It is important, therefore, that the attitude of the physician and nurse toward the patient should always be as correct as if the patient were freely accessible and normally responsive.

TREATMENT IN THE CHRONIC PHASE

During the prodromal period of the disorder, and during the early and more stormy phases, the patient is likely to receive the serious attention of the physician. When the psychosis persists and, instead of returning either to his previous level, or to a somewhat lower but still efficient level, the patient continues to show marked symptoms of the disorder, the tendency is for the individual patient to be lost in the group of custodial cases. The methods, which require to be applied to the case at this period, in order to prevent further deterioration, have been sufficiently described above. It may be useful to call attention to the improvement which in some cases follows a change of environment. A patient who has appeared to be hopelessly intractable or disinclined to take any part in daily occupations may in a new environment adopt a better attitude toward those around him, and be willing to take up some useful work. In some cases this is no doubt

due to the removal of the old associations, in other cases it may be due to the possiblity of assimilating the new environment with the patient's own inner world. It is advisable, therefore, to make an experimental change at reasonable intervals, and to allow the patient a trial either at home, or in a suitable domicile outside, or to transfer him to some other institution. These attempts should not be postponed too long, for frequently, after a long hospital residence, the relatives feel that their responsibilities toward the patient are adequately fulfilled by maintaining the existing arrangement. After too long an interval, therefore, it may be difficult to persuade the relatives to coöperate in the experiment.

CHAPTER XIV

THE TREATMENT OF PARANOIC AND PARANOID STATES

By ADOLF MEYER, M.D.

THE PROBLEM

Definitions.—Fixed and systematized delusions are the essence of paranoic and paranoid states. They are by reputation and common experience a type of mental disorder baffling all direct efforts at cure. *Paranoic states* are transformations of the personality in which reason appears preserved but side-tracked, and no longer fitting into the natural and real work of the world and of the individual, but active along set lines. The personality appears warped by the existence or evolution of central convictions which direct the thinking and activity of the individual more or less away from the normal interests and methods, and which play havoc with correct mental working by distorting its applications, and all that usually with a very bad outlook. *Paranoid states* are those *resembling* the paranoic transformations but differing in one or more points from the full-fledged type and its causal and prognostic implications.

Characteristics.—Every hospital for the mentally sick harbors a certain number of patients whose general behavior and mental activity appear in this manner to be perfectly undisturbed and normal, but betraying a peculiar side-tracking of their attitude to the world along certain specific lines of delusions. They appear "perfectly well except on certain topics." One patient confides to the visitor that she is perfectly well but kept in the institution by a conspiracy of people who do not want her to divulge her information obtained by mysterious revelations or visions. Or another claims she is detained for purposes of coercion, *e. g.*, that the physicians try to force information from her which may be of service to them. Or a venerable old sea-captain assures the visitor that his coming to the hospital was a necessary part of the plans of the Almighty, that he is one of God's prophets, that his inner knowledge makes him superior to the scoffers who call him crazy, that he has foretold most of the important events of the last few decades and is still foretelling them. A hard-working German woman, good-natured and a splendid helper, complains occasionally of hearing defamatory remarks from a set of people who have persecuted her for years and in many ways on account of her "noble origin." A German governess comes to the institution unable to hold her position owing to

suspicions, and more and more convinced that she is the humble instrument of a great reformation, a tool of the moral cleansing. Or a childless Russian woman is being tortured every night in her sleep by operations removing children from her body; her husband coöperates with the physicians, who get her children for experimentation. After a time this patient passed into a period of megalomania; she became the daughter of the Queen of Russia, and later Queen herself, held at the hospital unjustly; yet she does excellent work in the sewing room. Another patient, alcoholic, has an elaborate system of delusions of jealousy and of being poisoned with doctored milk, and from time to time has a violent outburst of anger, and complains of slanderous hallucinations of hearing. Another patient with a hemiplegia and hemiopsia on the left side for a number of years appeared perfectly reasonable but urged discharge because the attendants destroy his inside; they make him a crooked invalid; they trouble him by passing electricity through his bedstead at night. All this is stated in a semi-jocose vein. The patient has a history of slowly developing general paralysis with focal symptoms of the right hemisphere, but with remarkable preservation of memory, and merely this paranoic attitude as a residual of several episodes of expansiveness, which he has learned to minimize and to laugh at. Death occurred in the twelfth year of the disease, and the autopsy revealed the focal devastation process of general paralysis especially in the right hemisphere. Or we find a patient with a slightly depressed and uncertain attitude but a consistent delusional view of everything; that there are debts throughout the world; that everybody is ruined through the evil one and everything is systematically changed etc. All this is spoken and argued in a perfectly plausible and reasonable way, and referred to the effects of her own bad management and wicked conduct. It is utterly impossible to shake the convinction of the patient. Or a somewhat senile individual gives a consistent account of being deprived of all her property by the machinations of her son-in-law. At the same time there appear episodes of suspicion and unrest at night, but in the main no gap of memory and none of the usual evidences of senile dementia. Or a woman with recurrent attacks lingers in each convalescence with clearly delusional relations to the President of the United States and an attitude of paranoid exaltation.

In the course of deterioration processes of early or especially middle adult life we meet occasionally with hypochondriacal convictions of a very persistent character attributed by the patient to self-abuse and its effects, a living picture of the gruesome descriptions of the quack writers on this topic. Even in acute mental diseases we meet with delusional states more or less systematized and coexisting with relatively very clear mental states, conditions, which a number of German alienists have not hesitated to designate as acute simple or hallucinatory paranoia, according to the absence or presence of hallucinations, and from this point our series would spread into the poorly limited sphere of delusion-formation in the acute psychoses in which moods of uneasy

expectation and anticipation and discomfort can give rise to the very same delusional notions that we meet in the pure paranoias, only perhaps less systematized, and showing a less fundamental change or sidetracking of the personality as a whole. Thus we may find a paranoid reaction type crop out in a peculiarly distressing normal or morbid situation or sometimes quite transitorily during acute visceral disease. Although Head, who described these conditions first, assumes that these peracute paranoid episodes are something apart, I feel with Pick that they have all the same reaction type.

Delusion Formation.—It is natural that in the interpretation of cases of this kind the desire for a clean-cut issue has led to the emphasis of the delusion formation as the supposed backbone of the whole mental affection. It is, however, to say the least fairly possible that we deal only with an end-product, a kind of adjustment on the surface.

The physician will want to go beneath the surface. In keeping with his training, he is naturally apt to look for the so-called "lesion," or at least for a definite somatic or functional disorder, and he assumes that the intellectual picture of the world tends to adjust itself to the abnormal foundations and gets distorted according to the case and the situation. Unfortunately the "lesions" and the somatic disorders back of the delusion-formation remain usually quite hypothetical, and therefore not helpful; as a rule a mere intellectual comfort. We are, however, safe in saying that the whole development of delusions and systematization of experience in keeping with the delusions is the inevitable result of the effort of the person to balance the intellect in harmony with a new or abnormal situation; and beside the prominent notions which create the more or less typical surface pictures mentioned above, there are in evidence *fundamental tendencies* in these persons *to twist a wide range of experiences in keeping with a temporary or lasting bias or reactive tendency, which really should be the chief focus of a psychopathological inquiry.*

The very fact that the judgment is warped only along specific lines and relatively so clear and acute along most other lines might tempt one to stamp the cases as peculiar personalities rather than as sick persons in the ordinary sense of the word. Experience shows, moreover, that anyone who can hold a delusional attitude, in the face of good reasoning capacity apart from the warped topic, is apt to present a very fundamental and lasting deviation from the normal, a condition not likely to be overcome and more apt to *extend* under the effect of friction with the corrective agencies of the normal world. Transitory hobbies and notions and dominant pre-occupations will occur in many persons; but false convictions which so affect the attitude of the person as to be held in the face even of the fate of having to be segregated in an institution for life certainly represent a clearly momentous pathological transformation of the personality, the fulfilment of a fate of peculiar make-up by itself or with the help of special influences or situations.

Principal Conceptions of the Disease.—It will be easier for the student and physicians to grasp the advice of this chapter if we take some pains to discuss some of the issues which played a role in the paranoia problem.

The understanding of these slow developments was undoubtedly strongly influenced and hampered by the hopelessness of the prognosis and the unaccountable course in the rare cases of favorable termination. The dominant lesson most writers have to teach is that of chronicity and incurability, probably so that the reader might be induced more readily to permit of the permanent detention of the frequently dangerous cases in safe institutions. The chief aim, conscious or unconscious, of psychiatric teaching (*e. g.*, of Krafft-Ebing) was for a time this singling out of the "real paranoias," those fatally side-tracked, requiring permanent detention. Griesinger had assumed that all paranoia was secondary to other disturbances (like secondary dementia), but Snell and others showed the existence of "primary" paranoia.

Paranoia as "Disorder of Intellect."—At this point, and before that, psychologizing suggested a query, viz., the question of disorder of the intellect as such independent of affection of the emotions and the will as such. Under this heading formulated by German authors like the much maligned Heinroth (1818), and in the seventies again by Westphal and Mendel, the problem was whether the intellect was primarily involved and side-tracked, or only secondarily, as a sequel of emotional disorders, or of mere obsessions. Hence the peculiar second high-water mark of paranoia in psychiatry nosology about 1894, which then was made to englobe even ordinary deliria in this "*disease of the intellect*" in the views of Cramer, Mendel, and Ziehen. This extension made, however, very little impression beyond the fact that, no doubt, it became a sufficient irritation to help Kraepelin break through the traditional German teachings and to raise the issue of prognosis to its zenith in psychiatric consideration. Kraepelin's main query concerning a patient of this type was and is: Is the condition chronic, and does it or does it not entail a tendency to *deterioration?* If with a tendency to deterioration, the condition might rank as a paranoid condition; if not tending to deterioration, it is a true paranoia. Most Anglo-Saxon alienists probably feel that these are issues of only relative importance, which we can safely leave to time if we see no reason to differentiate the states for other more imminent reasons, which no doubt is the case. Whether the disorder is or is not purely a disorder of the intellect and whether the condition does or does not presuppose a deficit not only of good sense but really an actual deterioration, these are small issues as compared to the knowledge of what does the harm.

Doctrine of Degeneracy.—In France, the doctrine of degeneracy which emphasizes the fact that in certain families the successive generations deviate more and more from the normal, led Magnan to divide the domain of chronic delusional states into those belonging to degeneracy, and those belonging to a specially systematized transformation, which he called "chronic delusional states with systematic evolution."

This latter type has its best representatives in what we are now in the habit of classifying as paranoid forms of dementia præcox, or as paranoic conditions more or less akin to dementia præcox. The whole disturbance runs fairly clearly as a mental disease leading through several stages (malaise, period of persecution and period of grandeur) to more or less deterioration and showing all through considerable marks of a systematic and specific deviation from normal mental activity and normal reaction. The cases occur most frequently past the adolescent age, in more firmly fixed personalities than the average hebephrenia ever would reach. At the other end of the series there is, however, a relatively small number of cases in which the delusions are much more similar to convictions of the normal mind; they are more reasonable and much more like a lack of balance of judgment and a stubborn insistence and a certain rut of thought, than like a morbid perversion with more or less unintelligible and clearly pathological developments. Dercum construed such a series under the general title of dementia præcox. The fact that some general conditions of manic-depressive insanity are fulfilled by some of these cases has even led Specht to assume that "true paranoia" is part of the nosological group of manic-depressive insanity which forms a type rather different, after all, from Magnan's degenerative type with its variable eccentricities and "polymorphous deliria." Thus we have been led through the whole gamut of modern nosological units.

For some reason the division of delusional states into degenerative and non-degenerative ones has not met with much favor because of the *lack* of regularity of the findings concerning heredity, and their lack of conclusive explanatory or determinative force. In the main there has developed a growing interest in *trying to explain and understand the differences of the conditions out of the ontogenetic or personal individual material presented by the patients.* Krafft-Ebing and the French writers have for years maintained groups of paranoia according to the trend or topic of their delusion formation. But this did not go clearly beneath the surface. The interesting work of Wernicke has furnished a triple classification of facts according to whether the delusions referred to other persons and the outside world, or to the body, or to the interpretation of the previous personal life of the patient. It is indeed possible to distinguish fairly clearly such allopsychic, somatopsychic, and autopsychic types.

Causal Interpretations.—This definition appears, however, purely descriptive analytic and is yielding in the interest of physicians to *a more causal interpretation, i. e.,* that which tries to demonstrate fundamental mental factors and experiences out of which the delusion complexes are evolved as natural consequences.

FREUD'S VIEWS.—The first systematic attempt at interpretation in this direction was made by Freud[1] in 1896 in an analysis of a case

[1] Neur. Centralbl., 1896, vol. xv, pp. 442–448, and translated in Freud, Selected Papers on Hysteria and other Psychoneuroses, New York, 1909, pp. 165–174.

of chronic hallucinatory paranoia, which deserves repeated perusal. I know of few instances showing as clearly how a perfectly lucid presentation can remain ignored and only partly grasped until the mode of thinking has become more common property and a habitual expression. Most of the writers up to that time and since were satisfied to consider in a descriptive analytic fashion whether the disturbance was primarily intellectual or emotional, and whether it was a disorder of the intellect or some specially dominant affects such as mistrust (Sandberg) and suspicion that might form the key to a simple and unitary explanation of the developments. Inasmuch as these investigations did not make clear the origin of the distrust and suspicion and why it should work so disastrously in these special cases, the discussions remain more or less academic. Since 1894, Friedmann took a broader view. In 1894 and again in 1907 he saw the deep importance of special lines of longings or feelings in directions in which a conclusion and final settlement is difficult to obtain and which favor an affective state of expectation and, therefore, what he called Suggestivurteile, convictions and judgments arrived at by suggestive forces rather than by critical observation and critical inferences. This in itself would give some idea of why it is that conditions developing out of them tend to be lasting and even progressive. While Specht and others emphasized the specific "affect of mistrust" already discussed by Sandberg as the affective root of Paranoia, Bleuler in his admirable monograph "Affectivitaet, Suggestibilitaet, Paranoia,"[1] a remarkable product of psychological penetration, in 1906 showed even more convincingly than Friedmann this link of "suggestibility."

BLEULER'S VIEWS.—His development of Friedmann's primarily ethnological consideration of the nature of the *suggestivurteil* will always be an obligatory starting point for further work on the moving factors in these pernicious disorders. Bleuler demonstrated that *not the special affect, but the dominant affect of some experiences charged with much affect* would in some individuals lead to or feed on such a tear in the whole connection of their mental life that a false adaptation would develop.

Bleuler saw the important feature of paranoia in the fixation of the results of such dominant experiences charged with affect, and also showed that actual paranoic development and fixation took place in only a limited number of lines of experience. Thus he finds the reaction to obstacles to be resignation or possibly self-destruction (in other words depressions) if the obstacles are impersonal conditions, but more apt to be expanding delusions of persecution when they are attributed to persons. The opposite to these ideas of encroachments by other people lies in the ideas of grandeur based on the patient's own qualities, rarely the physical superiority (exploited by the manic and the paralytic) or the sphere of ordinary competitions (which at the most may lead to ideas of persecution), except perhaps in the realm of scientific, religious, and political ambitions where the creation of the plan gives

[1] Translated in the New York State Hospital Bulletin, February, 1912.

a great impetus, and where there is a temptation toward logical constructions. Ideas of exalted noble birth seem to be less active except in paranoid dements (and among our patients in America more frequent in Germans than among other types). More important is the delusion of being loved by a socially higher person, or the morbid jealousy of the sexually unsatisfied. Another important complex is that of the personal health, with the health faddist on the one hand and the hypochondriac on the other, including certain cases of litigation following accidents leading over to the querulants in general, those injured in their feeling of right and justice. Peculiarly enough Bleuler misses the yearning for progeny as a causal factor—which, however, is possibly controverted by our Queen of Russia and by Dr. Schreber whose case is analyzed by Freud—unless we rank these cases directly with the paranoid deteriorations. There evidently is more tendency in this direction in the paranoid developments involving deterioration or at least far-reaching transformations of the personality. Bleuler's reference to the "break or tear in the life" which undoubtedly can be demonstrated plausibly in a number of cases does not make it quite clear whether according to him the affect-burdened complex or disturbing experience as such determines the fixation of delusional complexes and the persistent tendency to progression, or possibly some other feature of the "tear;" but the fact remains: there is a dynamic factor at work, of elemental force, leading to the type of mentation and judgment characteristic rather of suggestivity than of essential logic.

AUTHOR'S FORMULATIONS OF PARANOIC TYPE OF CONSTITUTION.—The evolution of my own standpoint concerning paranoia depicts in a way the gradual transformation of issues of maximum interest. The articles "Paranoia" and "Monomania" in Baldwin's *Dictionary of Philosophy and Psychology*, written in 1901, give a sketch of the whole field, with a tendency to look for determining factors.

My own first formulation of the paranoic type of constitution[1] is that it is continually ready to see a (biased) *meaning* in things, that it is suspicious, and at the same time implies a growing inclination to isolation. These persons are continually concerned with what *other* people may think. They further attribute *intentions* to indifferent actions of others, more and more without judgment or attempts at verification of their suspicions.

According to my later formulation, the paranoic developments[2] go with formally correct conduct and grasp, but inability to adapt the personal trend of thought and elaboration and attitude to the facts. We thus see the following grades of developments:

(*a*) Feeling of uneasiness, tendency to brooding, rumination and sensitiveness, with inability to correct the notions and to make concessions—paranoic constitution and paranoic moods.

(*b*) Appearance of dominant notions, suspicions or ill-balanced aims.

[1] American Journal of Psychology, vol. xiv, p. 102.
[2] Psychological Bulletin, vol. v, p. 256.

(*c*) False interpretations with self-reference and tendency to systematization, without or with

(*d*) Retrospective or hallucinatory falsifications, etc.

(*e*) Megalomanic developments or deterioration or intercurrent acute episodes.

(*f*) At any period antisocial and dangerous reactions may result from the lack of adaptability and excessive assertion of the side-tracked personality. Paranoic and paranoid developments occur wherever *assertion of the personality* on logical grounds and reasoning occurs on false or morbid premises with inadequate realization of need of correction. There is a wide range of such possibilities as shown in the "incidental" or symptomatic paranoid episodes, and the paranoid character of "recovery without insight;" and even the full-fledged paranoic states are in a way symptomatic of definite types of maladjustments.

The study of this class of cases led me to look for disturbances of the *balance of instincts* of which we know that they are the forces irresistibly at work until some form of gratification or adjustment is attained. Certain definite difficulties and conflicts in the satisfaction of instincts would then lead to exaggeration of suspicions, of fears, and to other possible responses to interference with gratification such as definite delusional substitutions for the gratification. On this point, Freud has given us a valuable concept in the term "wish-fulfilment," which to a very large extent characterizes delusional solutions of existing difficulties as a harbor into which the sore mentality of the patient can retreat. The analysis of 1896 and the more recent one of Dr. Schreber's autobiography give us a series of concepts equally suggestive and helpful.

This latest achievement of greater definition of the factors at work and their products, to be reported with more detail below, culminates in the claim that homosexual conflicts furnish the most adequate explanation of such a case and possibly of the whole group. And this line of inquiry in turn has struck a rich vein of analogous constructions revealed by renewed study of the origin of myths and of the historic products of fundamental and imperishable human tendencies, cravings and conflicts.

Recent Views on Paranoia.—In the main the recent discussions of paranoia show a tendency to get beyond the excessively formal arguments and the rigid classifications. Thus Gaupp[1] furnishes an interesting discussion of the paranoic disposition and of abortive paranoia, the relation of paranoia to the whole system of psychoses with delusions and the conditions and mode of origin of progressive systematized delusions, the primary importance of the affect, the influence of the personal disposition, and the relation to deterioration. He shows that Tiling, Heilbronner, Siefert, Bonhöffer, and Neisser consider querulance as the product of a special disposition of character, a psychopathic personality and not the prototype of chronic paranoia. He next discusses Friedmann's mild cases akin to Wernicke's cases of dominant

[1] Neur. Cbl., 1909, p. 1310.

ideas and Ziehen's paranoid forms of neurasthenia, maintaining themselves for years on the edge of paranoia as merely rudimentary and abortive cases. Tiling, Friedmann, and Heilbronner describe as predisposing characteristics irritability, a passionate nature, sensitiveness, exaggerated ego, pride, and rash and twisted reasoning. Kraepelin emphasizes the longing for big and lofty achievements, a secret yearning for bold activity, a firm conviction of being born for something special. Tiling finds in one group haughtiness, obstinacy, a self-centred and egotistic manner, and a courageous and determined attitude, and a revengeful and unforgetting character. Another group shows ambition, haughtiness, self-assurance; and a third, hypochondriacal, anxious, discouraged, and weak moods. Gaupp's cases show a disposition similar to that of the psychasthenics of Janet; delusions of reference are not generalized and all-englobing. Gaupp misses in his cases Neisser's continuous progressive formation which leads with absolute necessity to a rigid system of delusions. The patients of this group are men between twenty-five and forty-five, first good-natured, modest, with little self-reliance, rather anxious, very conscientious and punctilious and scrupulous—so far like psychasthenics—tending to self-criticism and reflection without exhibiting any spirit of fight; and then, gradually, following an affective experience, a restless anxious mood with ideas of persecution sets in, with a moderate realization of some mental trouble and with psychasthenic complaints. The ethically sensitive natures reflect on their actions which may have given cause for criticism, but without delusions of self-accusation, and their pre-occupations remain directed against definite persons or sets such as the police. The tendency to self-reference is not generalized; the physician for instance does not become implicated; on the contrary the patient has a need of reassurance. There may be slight insight and at times again a greater feeling of the reality of the trouble. The condition never leads to an exaggerated ego. Gaupp's cases certainly had nothing to do with dementia præcox nor are they a phase of manic-depressive insanity. Not one of these cases ever recovered completely. The depressive scrupulous disposition was always present and at the bottom of these characterogenous delusion formations. Gaupp thinks that most querulants are cases of chronic mania. Laquer thought these cases identical with numerous recoverable ones, but Gaupp excludes these from his picture.

For a thorough historical study of the paranoia problem it is necessary to follow independently the developments in practically every language unit that has ever formed a centre of psychiatric work: the French writers, Germanic writers, the Anglo-Saxon world, and the Italian literature. It is easy to see that the French followed very self-dependent lines until of late years. The German-speaking students were more willing to learn of the views of the French and English and Italian literature; but in the main they went their own ways and had, as in other lines of thought, the deepest conflicts agitated by ardent representatives who often start from systematic aprioristic viewpoints, but

after all are also closely in touch with the facts. The Anglo-Saxon literature depicts a good practical sense with moderate penetration of the actual details of both the cases and the prevailing literature, whereas the Italians stand midway between the German and French schools.

Principal Types.—Looking over a series of these cases we find they show in the main two types: those in which the delusional attitude is the residual of a more profound and diffuse mental disorder or at least a more or less demonstrable damaging factor like alcohol or senility, and those in which the disturbance is mainly the outcome of more or less taxing experience or perhaps merely the fate of a special make-up.

Where systematized delusions occur merely as part of a more or less acute mental disturbance or as a mere accompaniment of some profound and serious disturbances such as alcoholism or general paralysis we find as a rule that the delusions get better or worse with the fundamental disorder. For this reason most workers speak of paranoia or paranoic conditions only when these delusional states appear as not otherwise accounted for. It is natural that mainly this type of disorder will be fully considered in this chapter, although we shall see that the principles of treatment remain similar where systematized delusions appear only incidentally, but show at least a bias of the personality.

A review of the complete life of many of these cases convinces me of the futility to expect absolute laws and a possibility of absolute regularity of prediction. There is more or less likelihood that a case will follow a well-defined course and that it will be incompatible with one or the other mode of progression or amplification; some cases will even coincide completely with the standard patterns of the composite pictures used for teaching in most text-books; but for a real student of the facts as they are dogmatic assumption for instance of an absolutely settled and final prognosis is a presumption for which as a rule the patient has to pay, whereas a sufficient recognition of possible alternatives of development gives all the desirable certainty for action and keeps the mind of the physician open to the acquisition of new facts and to the use of new opportunities to benefit the case.

Psychology of Paranoia.—A psychology of paranoia in the sense of a complete understanding of all the factors which conspire in its formation and development is well nigh a utopia. The fragments available now for efforts toward such an understanding nevertheless begin to be somewhat encouraging, so that we need not surrender to resignation with a mere proclamation that bad heredity, or degeneracy, is the only known cause, and perhaps certain peculiar and difficult events in the patient's life, The advance of psychiatric analysis of paranoia consists in the growing accuracy with which specific formative factors and idées-forces can be pointed out as the determining forces which shape the morbid attitude of the patient; and it also becomes possible to outline the character of the mental make-up which lends itself to a fixation in paranoic conditions.

The vital problem will always retain a firm grip upon the intrapsychic mechanism and the way the mental adjustment gets side-tracked in the given practical mental or somatic difficulty.

If a person develops a paranoid state in a manic-depressive state or in the course of what first looks like neurasthenia or hysteria, or a more or less frank schizophrenia or paraphrenia (as Freud now terms dementia præcox), or in an alcoholic state, we have a right if not the scientific duty to consider it at least as a legitimate alternative that the *mental endowment broke down at a point of fundamental weakness*, and it becomes our duty to study the *mechanism* with which the *breakdown* took place and the material over which the disorder became manifest. The further question is then to what extent any special type of false adjustment is capable of redress.

THERAPEUTIC MEASURES

Early Attempts at Cure.—In the face of all the tendency to hopelessness, even the earliest writers on fixed and systematized delusions give interesting advice as to attempts at cure. One of the most complete statements is contained in Reil's "Rhapsodies on the Use of Psychic Treatment in Mental Disorders" (1803), which contains a very excellent discussion of the fixed ideas in partial insanity and their management. He believes that for the psychical treatment of these disorders all that is needed is the wiping out of the fixed idea (page 324).- With it, all those impulses, yearnings, and improper activities disappear which arise from it as from a spring. If the idea is silenced, be it only for more or less prolonged intervals, and if thereby the "trembling cord" (or abnormal part of the nervous system) be given temporary chances for rest, the dominant irritability and sensitiveness on which the morbid tendency is based is diminished, in a measure as the normal balance of forces in the organ of mind returns, and with it the freedom of deliberation and the determination of volition according to the laws of reason. The patient is enabled to realize the lack of foundation of his fixed idea or to put it aside as something irrelevant until it finally fades by itself. This, of course, depends on many factors: The dulling of excessive irritable tendencies of the body which attract the attention of the hypochondriacal too readily; the removal of accidental causes in the body and outside of it, for instance, cœnesthetic irritation, or objects of love or of hatred; appropriate helps during the earliest development of the fixed idea which fight its taking root, and finally the pushing of matters which next to the fixed or dominant one have the greatest interest for the patients; all this, according to the rules mentioned in regard to mental disorders in general (given in another chapter). All ideas, however much they fascinate us by their interest, finally will fade in the course of time, if they are aroused by events outside of us and not by permanent stimuli in and outside the body. In these cases, therefore, everything depends on gaining that amount of time which

cures the trouble thoroughly before the brain or its excessive tension has received injuries which by their nature would be incurable.

Reil insists that we should cultivate in the patients obedience and respect for the persons who are expected to arouse their sense and to prepare them for the treatment according to principles which hold for the treatment of all mental disease. The physician must get hold of their hearts, now by seriousness and severity, now by leniency and by sympathy with their fate, especially where misfortunes are at the bottom of the trouble. Thus the physician becomes enabled, either by reasons and cautious admonition or by coercion to hold them down to such steady physical or mental work as will push aside their fixed ideas and bring such intervals that they fade out by themselves. The work must have sufficient variety in order that the patient cannot associate it too readily with his fixed notions. The work must be adapted to his capacities and likings and must thereby be attractive. Should we not be able to find any topics which would absorb the patient by their natural interest, Reil proposes to arouse the patient by exposing him to various dangers and emergencies from which the patient would naturally want to escape; he would put him in a place where his attention is thoroughly absorbed by his being forced to escape water jets, risks of falling into ditches, etc. (a procedure which Reil says could better be organized in public institutions than in private homes). Crude as this may seem, the fundamental idea he has in mind is quite correct. What he means is that we should never surrender the hope of being able to get hold of some vital interests by which we might be able to absorb the patient's attention sufficiently to make him forget his fixed ideas, and for this he would not mind appealing to very fundamental interests of self-protection. It is a matter of great satisfaction that our modern tendency to appeal to attractiveness rather than to obedience and coercion also in the domain of ordinary education has put at our disposal a fine array of means of profitable distractions which justly has changed most of the old methods of school discipline and the discipline of general life, and make unnecessary the artificial and after all barbarous and ludicrous scheme of Reil.

Reil also gives accounts of clever and rapid treatment of many of these diseases, which remind one of what laymen and even physicians sometimes expect the psychiatrist to use. Thus Reil reports (page 327) the case of a young man who was reasonable with the exception of the fixed idea that he was a Swedish Prince. He was sent for treatment to a woman who had acquired a great reputation in the care of the insane. She put him beside herself at table at the first dinner. He spoke and acted for some time in a consistent and natural way until all of a sudden he digressed to his fixed idea. At the very same moment he received such a slap in the face that he saw stars. This treatment which he certainly had not expected from a woman, and especially not on the first day after his admission, acted so profoundly upon him that he never mentioned his notion again. In the same way, the passions of fright, love, and hope, which are based on important objects of religion,

honor and fear of harm are described as contributing to remove the fixed idea. When Orestes had revenged the death of his father with the blood of his mother Clytemnestra, he became subject to the delusion that their souls followed him armed with torches and snakes. The oracle advised him to take a trip on the ocean with his friend Pylades. They landed in the Chersonese and there he was exposed to the danger of being sacrificed to the gods of the land. He escaped death and learned that he was saved by his sister Iphigenia. Both passions, fright, and joy so acted upon him that he turned to Greece restored and able to take up the reins of government. A merchant in France, following some commercial losses, had developed a fixed idea that he was going to starve in poverty. At that time the Reformation broke out in Germany and this attracted the attention of the patient more and more. He defended popism by speech and writing and was cured of his delusion. At times it is possible to persuade the patient that he has attained his purpose; or it may be possible to convince him of the absurdity of his premises, etc.

In other writers we read of sham operations performed to remove animals or influences giving rise to hypochondriacal notions. But all these things can hardly be trusted in our days of independent thinking and of aversion to coercion and authoritative deception. We might possibly condone occasionally the intentional use of the methods of the quack, based on the faith of the patient or on his superstitions. While I have myself seen improvements following some such extraordinary maneuvers they are usually undertaken at the risk of undermining any possible rational plan. For this reason it becomes our duty to train the medical profession and the public to have confidence in methods more in harmony with what can be carried through in the long run. As has already been mentioned our hope rests upon the undeniable progress in the extension of our knowledge of mental life and its motives.

Type of Modern Common-sense Management.—A more plausible sketch of the common-sense management is given by Sérieux and Capgras, who in 1909 published a most interesting series of cases of "délire d'interprétation," conditions in which perfectly correct but indifferent observations are given a personal meaning; the patient is forced to refer them to himself or herself; there are no hallucinations or but few; the mentality remains lucid and active; the sphere of morbid interpretation becomes progressively larger; but there is no dementia notwithstanding the unfavorable and unshakable course. The ideas are those of prejudice or distinct persecution, leading to retreat, defence, or even attack and revindication; or the ideas are along the line of ambitions, wealth or grandeur, reform, invention; or jealousy, or ideas of being loved, or mystic experiences, or hypochondriasis, or self-accusations. Therapy has no real cure to offer. But that does not mean a surrender of the patient. He needs supervision, especially in the periods of excitement or depression. The first condition is mutual confidence, and patient listening without

argumentation, and then an apparent forgetting or passing over. Occasionally it may be well to point to certain contradictions, but without arguing central issues. The main point thus becomes the cultivation of diversions, manual and farm work, and wholesome muscular fatigue, or literary, artistic, or scientific work; or one may even encourage work which might seem to favor the notions (thus a candidate for the papacy is induced to learn "the eight necessary languages"). Others do well to change their habitat or profession, to travel with people in whom they have confidence; often enough with distinct remissions. Tanzi directly teaches the patients to dissimulate their condition and has succeeded in keeping it checked. While most mental diseases require commitment, these cases of Sérieux bear it poorly and mostly do not need it; or at the most they need a certain supervision in a colony or open institution. When, of course, the patient becomes aggressive, and liable to commit serious attacks, commitment becomes an issue of safety under the discipline of an institution. Some cases will naturally be liable to serious attacks on those who hold them; one patient tried to burn the institution; but even then rather than seclude such patients it is best to put them into an institution of special safety and with specially good supervision. If the hated person is out of reach, the craving may subside, but it is well to guard against dissimulation.

Symptomatic Treatment.—In the recent Traité Internationale de Psychologie Pathologique, Magnan and Sérieux recognize only a purely symptomatic treatment for the chronic systematized delusional insanity. The first consideration is *not* to do harm. Leuret's intimidation with the hydrant; Baillarger's experiments making the patient wear Hiffelsheim's galvanic apparatus, sending a weak current through the brain; Moreau's attempt to produce drug hallucinations as a counter-experience—all these attempts have failed. Tonics and good hygiene, sedatives for temporary excitement, and commitment save the conscience of the physician.

In the délire d'interprétation of Sérieux and Capgras with their precocious, or tardier, constitutionally inferior, partial, persecutory, resigned, hallucinatory or doubting or confabulating varieties; and in the "délire de revindication" the authors acknowledge the importance of some emotional shock and a special constitution as the necessary cause of the condition. A special treatment is not even considered.

Reëducation.—Dubois[1] in a lecture on psychotherapy gives a rather conservative view of the applicability of his method of reëducation to paranoia. "Bleuler has shown for paranoia that the ideas of persecution do not come on in consequence of a disease but that they have their foundation in the affectivity and suggestibility of the individual. Frequently the patients have actually passed through experiences which do not make the idea of persecution appear unreasonable. The morbid point is only the *fixation* of this idea; and Bleuler raises the question by what it may be conditioned." Dubois' own explana-

[1] Fortschritte der deutschen Klinik, vol. ii, pp. 69–70.

tion is the same as his explanation of the phobias. He assumes a psychasthenia in the sense of a fundamental defect of intelligence.

"The man who becomes a paranoic may frequently show himself remarkably intelligent in one domain; he is, however, nevertheless 'psychasthenic,' and does not adjust himself properly, exactly as the neurasthenic or the psychasthenic. The peculiarity is that on account of his emotional disposition he is egotistic and proud, fearful of having his feelings hurt by others; he therefore exaggerates all experiences which hurt his egotism; he lives constantly in a dull emotional state which confuses the anyhow weak mentality; he puts an even more decidedly wrong interpretation on the evidence and actions biased by his sensitiveness; thus his unrest becomes greater and his ideas more absurd. The brain of these persons is certainly not up to standard, and it suffers molecular changes under the pressure of lasting delusions. A gradual decline does not fail to show in grave paranoia. The querulant stands on the same level. He, too, has evidence of the existence of morbid eccentricity frequently with unlimited conceit long before the outbreak of the disease. He considers himself superior to everybody; mixes himself into everything, and feels mortified if his opinion does not get full sway; mortifications are bound to occur in such behavior; he again takes up the cudgels and becomes more and more deranged until he gradually declines in an institution.

"If such a condition has established itself the task of the alienist is not enviable; the patient does not even like to remain in the institution, and there he continues his life of querulancy. I should not think of recommending psychotherapy for these cases. On the other hand, I cannot help asking the question whether a well-directed education in youth might not have worked prophylactically. Excessive conceit is of course difficult to remove; yet we all have in the course of our life lost more or less of our youthful conceit."

"In the cases of delusions of persecution which I took under treatment for pity's sake I have not had any real results; but even in the more difficult cases I have at least been able to establish improvements which certainly were not accidental but must be ascribed to the educational influence. When after a course of months the ideas could no longer be fought against, and they became more absurd, the looks, and the whole attitude of the patient would also give me an impression of a certain decline of intelligence. I further have in my practice a few observations of slight ideas of persecution which sometimes could be reached successfully. In the office hours these patients would come to me about once a year 'in order to have their heads washed,' as they themselves called it. There we may justly ask whether such efforts might not under certain circumstances save a young man who tends toward ideas of persecution. On this point psychotherapeutists and good family physicians might be able to give a better answer than the psychiatrists, who only deal with the severe cases and do not find the time to subject these patients to a process of reëducation."

To understand this fully, it is necessary to realize that to Dubois

phobias are like ordinary fear, but morbidly easily elicited, exaggerated and lasting more tenaciously even after the primary danger is forgotten. The psychasthenic always proves to have a deficient mental synthesis. He is not able to think of the facts which could balance his morbid anticipations. Unfortunately an imaginary fear is apt to be more disturbing than a real one because it is bound to be viewed more one-sidedly. Dubois admits that the same type of phobia may yield in one patient in one session, in another after a few weeks, and resist all efforts in a third case, and he feels convinced that this is due to differences of intelligence and common-sense. The correction is a process of intellectual analysis of the concrete facts and their valuation and a training in the proper kind of the logic, a type of mental orthopedics.

To apply this training of logic to paranoic persons is notoriously unavailing in most cases. The paranoic is an adept in a kind of logic of which he is difficult to wean without such a revolt of amour-propre and conceit that the efforts have the direct result of making the patient less accessible. While the process to be used may be called mental orthopedics, the method must be much more subtle than the ordinary form of argument, or even that exemplified by Dubois.

To all this excellent common-sense advice we should add efforts to work at the foundation of the conflicts. This can be done without any wrangling over the surface conceptions or delusions. The cases may require cautious sifting, since few seem promising; but in the end we must admit that sometimes the unexpected happens: a case with bad prognosis recovers, and that probably the more easily the more clearly the patient has been given a view of a harbor in which to take refuge.

Treatment on the Basis of Modern Psychodynamic Interpretations.—Let us now turn to the standpoint of the more modern psychodynamic interpretations.

It is natural that the conception which sees in paranoic developments a morbid and delusive attempt at finding a balance would also entail certain *therapeutic* inferences, part of which are simply common-sense adaptations of this conviction. They urge that the patient should be put into as neutral an environment as possible and protected against irritation and should be furnished adequate occupation to absorb his energies and utilize them to the point of satisfaction, where satisfaction can be obtained. There has, however, been more than this in the accounts of Riklin,[1] who has used well-planned transfers of patients from one division of a hospital to another (chiefly for katatonic paranoid states), or special assignments of occupation, to bring the patient satisfaction along the very lines of his yearnings and at the same time in keeping with the good sense of his environment.

The very nature of the constitutional make-up of cases liable to paranoia makes it difficult for them to get the helps in time and from the right source. The suspicion of hospitals, the fear of being detained,

[1] Psychiatr.-Neur. Wochenschr., 1905.

railroaded, and locked up, and the absence of convincing evidence that many cases could really be helped sufficiently to make up for the unpleasantness of subordination all tend to intimidate the patient and to make him shrink from owning up his condition to physicians, or even to his friends. There is, however, a certain number of cases that make appeals for help in one direction or another, and it is these that would seem most urgently promising. The methods of procedure are those of all the mental disorders that have been analyzed in previous chapters, wherever there are any somatic disturbances or habit disorders or morbid complexes to be corrected, or, at any rate, to be brought to a certain point of mental balance by getting the proper environment and by entering upon a careful readjustment of the motive forces of the personality, either by therapeutic conversation in general or by the specific technique of psycho-analysis.

Determination of Extent of Delusions.—The first task is to determine from reliable informants and from a study of the patient the extent of what is delusional and what is real and the direction and strength of the *manifest* motive-forces vitiating the patient's attitude and mental reactions; the plausibility or wildness of the notions which can give us an estimate of the patient's level of resources and tendencies and critical acumen, and of the extent of undermining that has taken place and of the material that might be available for reconstruction or to maintain an equilibrium of safety toward others; the existence of fundamental disturbances such as a depressive or manic tendency, alcoholic or other toxic affection, general paralysis or senility or special constitutional make-up and the existence or absence of remediable exciting factors in the outward situation of the patient which would throw light on our estimation of the depth and intrinsic nature of the disorder; the extent to which hallucinations and autochthonous ideas play a part which would mark the amount and kind of dissociation of the personality; the extent to which ideas of self-reference and morbid misinterpretations and a mood of morbid expectancy prevails, which would form a standard of the acuteness of the disturbance.

We must be ready to accept the existence of any combination of facts presenting themselves and any type of development that may suggest itself, rather than merely one or two or a few set notions or types. We must realize that a paranoic reaction may occur as a harmless simple episode under sufficient provocation, or symptomatically on the ground of visceral disease or malaise, or of some toxic or other cerebral or mental disorder, or it may be a more autonomous paranoic development. However this be, the final estimate should be made after a careful weighing of the factors at work rather than a mere snap-shot or stereotyped identification with a standard type, and set inferences from the traditional assumptions concerning incurability, etc.

While we insist on these fundamental principles, the first practical task is that of safeguarding the patient and the environment against irresponsible or regrettable acts or interferences or sources of further aggravation and to bring the patient to treatment.

Let us assume that we are called to help a case in which a paranoic or paranoid development is at work.

Available Alternatives.—The alternatives are:

1. To establish a relation of coöperation with the physician without any deep or disturbing change in the life of the patient apart from what is demanded for purposes of regularity of contact with the physician and of protection against undue irritation. Quite a few patients can go on in their occupations or positions and yet give the necessary time to the physician.

2. Where an arrangement of home and office treatment is insufficient, it may be advisable to get the patient to leave his environment for a quieter, more indifferent, or directly helpful atmosphere, with some employment, or work, or play, accompanied by proper medical care.

3. It may seem desirable to get the patient into intimate contact with the physician at a *sanitarium*, but only if there is ample certainty that the patient's life can be made full and satisfying.

4. It may be mandatory for the sake of safety to induce the patient to go to an organized institution if necessary under legal commitment, but even then with the obligation on the part of the physician to shape the patient's life so far as possible toward constructive improvement, and to consider the detention, wherever possible, purely as a transitory expediency in the case that no other safe measures are available.

The nature of the paranoic constitution, and of the actual paranoic states is very apt to frustrate most of the above efforts and to force the baffled family and responsible advisers to assume a more or less coercive control with the help of the law and authorized detention in closed institutions. But even then it is absolutely mandatory that the above attitude described under (4) be adhered to, and that if one physician is unable to get into relations of coöperation, another be given a chance, or if one institution becomes objectionable, the patient's wishes be consulted to a reasonable degree with regard to a change. When all this is considered there arises the equally necessary urgent responsibility that a reasonable but firm policy be decided upon, removing all looseness and uncertainty, easy to be kept before the eyes of the patient, and serving as a program of absolutely fair and square dealings. The program must be able to stand clearly as *the consensus and conclusion of thoroughly informed and fair-minded persons*, the result of conjoint consideration of the entire situation; and the physician is to act as the agent of this consensus. The ideal to be kept before the patient is that he or she gradually join the consensus and make unnecessary any subjection against his or her will. I cannot help being reminded of the advice given a disappointed author who complained of a real conspiracy against the reading and the discussion of his books and who got the advice from one of his friends and fellow club members that the best thing he could do was to join the conspiracy.

It is not always easy to decide, when the patient's condition makes coöperation impossible and the right of protection of society becomes an absolute *duty*. Where the physician goes to the trouble of explaining

the situation and the actual facts and their bearing on the impartial consensus to the patient, the physician can easily preserve his relation to many a patient without making the public run undue risks. The prevalent newspaper psychiatry assumes that paranoia *spells* danger and disaster. But we must remember that it is not the "diagnosis" but the facts in the case judiciously considered that will answer that question. The responsibility of the physician is tremendous in many of these cases; the decision can be very hard to make; whatever it may have to be, purposes of *treatment* can remain our dominant consideration without making us relent on measures against possible risks and dangers. The idea of treatment should certainly never be forgotten, even in sight of the most urgent needs of drastic restrictions of the free movements of the patient.

Taking for granted that the safety of the public is attended to and that the patient is in one of the situations enumerated as available chances for proper medical work, what will be the methods?

Plan of Getting the Facts.—First we have to correct all the conditions which might jeopardize the general hygiene of the patient as mentioned in all forms of mental disorder; next we have to establish a mutual understanding concerning the consensus of a plan arrived at. The actual psychopathological study of the paranoic state as such begins with a most careful collection of the manifest material of the patient's life in terms of a careful chronological reconstruction of the events.

For this purpose it may be possible to obtain an autobiography, supplemented by trustworthy control accounts of healthy and well-informed persons.

Acceptance of Patient's Point of View.—The main thing is, however, a clear and frank unloading on the part of the patient and equally frank acceptance of the patient's point of view by the physicians. And here the first rule is the ability to accept the statements in an attitude in which neither the patient nor the physician need at any time be forced to recognize deception. I am as capable of listening calmly and politely to an account of a system of delusions as I am able to inquire into the religious and philosophical views of an oriental, and do not see why it should not be possible to do the two things with equal fairness and equal suspense of criticism and argument, and to arrive at a working agreement without any need of deception or sheer "humoring." It is possible that such an attitude becomes natural to one who looks upon any set of views as a more or less legitimate outcome of human mentation under certain conditions, and who sees the chief task in finding the *conditions* which led to such views.

For the working agreement it is always possible to find some really plain issues on which the patient is as anxious to get relief if not clearness as the physician is anxious to give help. There are always some real nuisances to be eliminated, such as the troublesome nagging of anxious friends, or the upbraidings of an ill-advised wife or husband, or some personal difficulties, like headaches and constipation, due to an

obvious lack of hygiene. It is possible to start from such complaints in making the plans for the most advantageous daily regime within the possibility of controllable execution, at the same time giving opportunities to penetrate the latent strata. Every patient has definite conflicts and the physician's duty is to see through them and to enter into them without taking any such part as would compromise his good sense and consistency of action, and also without neglecting opportunities to go into all those details which might ultimately help in the undermining of the morbid assurance.

This is the point on which the tyro is apt to lose out from the outset. Only infinite patience and a great familiarity with the sensitiveness of the patient and the liability to shrink into the shell of the morbid attitude will prevent excessive precipitation and inevitable failure. Most physicians will offend the patient *before* they can help, and even before they come to the point at which they are *willing* and ready to disagree on certain matters.

The *details of the procedure* cannot be outlined profitably in generalities. We do well to turn to the cases in which something has been attempted and achieved.

Illustrative Cases.—FREUD'S CASE.—As mentioned above, Freud[1] as early as 1896 entertained the idea that paranoia also is a defence psychosis determined by the nature of the painful reminiscences repressed. The case described by him developed very gradually; suspicion and aversion of the environment, peculiar seclusiveness (undressing only in bed and under cover and in darkness); later, feelings in the sexual organs supposedly simultaneous with unseemly thoughts on the part of the servant; after a while hallucinatory pictures of female nakedness and indecent exposure; often kindred fancies when in company with any woman, with the passive feeling that she was seen by the woman in the same way; and also auditory hallucinations of the nature of comments. Freud attempted to overcome the resistances to certain repressed reminiscences under the supposition that the paranoid concepts might be reduced to repressions. The fancied pictures of the sexual organs of women proved to be traceable to actually *seeing* women naked in a hydropathic institute; the patient was then ashamed of being naked or of being seen naked, and evidently oversensitive owing to some preëxisting constellations.

Associations to the theme of shame revealed a number of situations back to the sixth year, when she was ashamed of undressing in the presence of her brother; situations which then and later occasionally had their counterpart in the temptation of the children of showing themselves naked to one another. Discontentment with the husband after a brief disagreement and with it the belief that she seemed to be generally despised and intentionally annoyed set in after this very brother for some reason ceased to visit her home. At that time "everything suddenly became clear to her," certain remarks of her sister-in-law,

[1] Selected papers on Hysteria and other Psychoneuroses, pp. 165–174.

misinterpreted later on, really had found her sensitive because they followed some general and unintentional remarks about "all sorts of difficulties with brothers which one would rather keep under cover." It was also found out that she would make appointments with the brother without really finding anything to say. Ultimately her whole sensitiveness about nakedness, visions, and so on proved clearly to be fragments of repressed reminiscences of sexual relations between her and her brother at least from her sixth to her tenth year. With regard to other hallucinations the patient remembers that after reading a certain story and passing a certain cottage she heard remarks that "this was the house" (described in the book), but along with this, indifferent and most irrelevant passages of the romance itself ran through her mind. Certain passages in the book had recalled reminiscences of her own married life and she found in them her own family secrets mentioned. These were repressed and the impulse of reiteration turned upon harmless passages which, in an automatic manner, she rehearsed mentally. The lonely heroine was a subject of gossip by her neighbors—and so she thought she was herself. In early married life she had suffered from shyness fixed largely on the fear that neighbors might hear through the adjacent wall words or noises suggesting the sexual relations—a fear of discovery fed and aggravated by the reminiscences of "playing husband and wife" in childhood.

The feature peculiar to paranoia is that the repressed reproaches returned as loud thoughts but *under transformation*, so as to conceal the connection and so as to include analogies from the present situation and obvious reference of trivial events to herself in the light of imaginary meanings and interpretations.

While the one analysis does not show why in this case the paranoid development occurred rather than the psychasthenic or hysteric type, the foundation for a truly psycho-analytic intrepretation of a case of paranoia was then laid by Freud.

Outcome.—The actual outcome of the case is not stated even in the later edition, beyond the suggestion that she evidently could be studied outside of an institution. It certainly is plain that with the interpretation at hand a more reasonable common ground was established between physician and patient, and the patient's mind was directed to more helpful topics of consideration by being taken over the concrete and real events of her life than if she had been left to the progressive production of fancies without any corrections at the foundation.

BJERRE'S CASE.—Paul Bjerre[1] describes at length the successful radical treatment of a case of chronic paranoia of ten years' duration.

The patient, fifty-three years old, brought a letter from a prominent social reformer assuring her that nobody ever thought badly of her, and urging her to get herself freed of her erroneous thoughts by Dr.

[1] Jahrbuch für Psychoanalytische und Psychopathologische Forschung, vol. iii, pp. 795–847.

Bjerre. As a matter of fact she wanted hypnotic treatment of her thyroid gland, which "kept her nervous and unable to face her persecutors." She was surprised that Dr. Bjerre did not know of the scandal. Everybody makes offensive signs at her, in the street and in the shops; the cashier in the office in which she works is the leader; the chief has put out his tongue at her; and even the two-year-old child of her niece has been misled by an insolent servant. People envy a woman the right to arrange her life as she pleases. She had relations with a man from 1898 to 1899, and never regretted it. But people now want to punish and expose her and drive her to suicide as they did a Miss X who had become pregnant.

The conspiracy has spread steadily from a woman's club to the shops and hospitals, in the schools, even in Puck (1899) and in "Was Neues" (1900); her case was discussed in a journalists' association. One day her niece came with her to the post-office, and the office girl put out her tongue as far as the ear and her niece claimed not to have seen it. The thyroid (normal) had "troubled her" since 1906; uterine hemorrhages had led to removal of the uterus and left ovary in 1908. Marked heredity of peculiarities in the family. The patient reminds one of some of the cases of Sérieux and Capgras. Bjerre identifies it with Kraepelin's paranoia. The disorder reached its completion in about nine months from the onset and has kept up with only a slight let-up between 1903 and 1906. Bjerre excludes the "light form" of Friedmann, also hysteria; and suspects a similarity with Deventer's case of recovered paranoia.

Analysis of the Case.—Although in his knowledge of the literature the treatment was generally described as discouraging (with the exception of A. Hoch's paper), Bjerre undertook to review and analyze the life of the patient in all its details from the earliest childhood to the present day, recasting all the misintrepretation, and sowing a thousand germs of doubt about the delusion, and he unearthed the subconscious complexes and dissolved them. The treatment consisted in about forty hours of condensed conversation, spread over four months.

The first point was the establishment of the necessary rapport with the patient. Bjerre absolutely avoided all doubt about her persecution and spoke with the patient about these matters just as of any other fact. At one of the first sessions she suspected signs of persecution on his part too, but the interest in the discussion and the tact of Bjerre won out. She came regularly, every other day. Only gradually Bjerre would begin to interrupt her occasionally and to give occasional interpretations and discussion which interested her very much. Thus he introduced the frequently unconscious effects of an hereditary defect; then the lasting impressions of the parents, etc.

It is unfair to give an abbreviated account of the excellent presentation; what is here given is but a series of fragments. The patient grew up with a sister two years her senior. They went together to Stockholm to live. At eighteen the patient wrote a few papers for private circulation, became interested in anonymous writing, and a

joke led her to insert an advertisement of matrimony which led to a most fascinating love affair carried on in a correspondence of twenty years with a man in whom she finally was utterly disappointed when she met him the first time as she found him engaged in a love affair with her younger sister. During these years she had worked herself up to a prominent position as a teacher; had travelled much; had wide interests; yet she was not fully satisfied. Dr. Bjerre made it plausible to her that in the main the career checked her sexual development, and led her into a discrepancy of imagination and reality. Soon after the harsh collapse of her dream she was drawn into sexual relations with a man whom she really did not love. She yielded because she "has a right to do so." The affair came to an end after she had followed the man to another city.

A waiter was the first to make a face at her as she left the hotel. Her accounts began to be rather hazy and fragmentary; she excused herself: "I never have thought with the intellect, but always with my feelings. If we wish to make headway you must let me think my own way." But Dr. Bjerre insisted on the education of her methods of thought and forced her to be as accurate as possible. The first sign of persecution proved to have occurred at a horse-race. She sat on the tribune for the press beside an elegantly dressed lady. She noticed that her neighbor was the centre of much attention. One after another, the men gave peculiar signs, especially little movements of the tongue. She began to suspect that the signs must have a hidden sexual meaning. She did not see the lady again but was terrified the next few days to see that the people in the street began to make similar signs to her.

At this point Dr. Bjerre began very cautiously to give various possibilities of explanations and especially to suggest the possibility of an error. He gave her numerous instances of the psychology of illusions, the ease with which old impressions blend with the new ones, how subconscious motives can come in; how difficult it is to harmonize and assimilate all the deep impressions; how more or less furtive (and disowned) experiences will have their effects; how emotional thinking is especially fraught with danger; how one can come to identify one's self with a Hamlet, or with other persons; can have the same pains as another; how one's imagination can draw on combinations of which we would hardly dream in our critical consciousness, etc. Bjerre showed the patient that it probably was not mere chance that she sat down beside that lady; that she saw in her the coquette; another "chance" may have attracted her attention to the movements of the tongue; then comes the identification of herself and the lady. The patient admitted the possiblity but not the probability of this interpretation, and Dr. Bjerre left the matter there without insisting on undue argument.

He then took up the history of previous experiences and associations related to the tongue. She remembered seeing an insane man screaming and sticking out the tongue. Bjerre suggested that such an impression might have made her more responsive or attentive to the movements of the tongue; but she denied it. The explanations from the "psychology

of everyday-life" did not impress her; she laughed at them. Bjerre went on to speak of the possibility that she might herself have become inclined to make such motions with the tongue. The signs remain to her a sexual symbol; she is sure that she had read of this; that some persons even have a peculiar ability to imitate the form of the membrum virile with the tongue; that the movements of the legs occurred beyond all doubt, etc. All this came out spontaneously but against tremendous resistance, which Bjerre simply let pass by going over to further experiences. The picture in Puck was taken up, and not found. But finally the patient discovered what she had referred to in the Christmas number of another funny paper; the analysis of the text showed plainly that it referred to another woman journalist. The article in "Was Neues" also fell flat; the patient was rather surprised, but all this made little impression on her and was not exploited too much. Other specific "persecutions" from the more public to the more personal ones were taken up and interpreted by Dr. Bjerre without leaving any deep impression. She "could not possibly have been mistaken." The cashier "had transferred his mean treatment of a poor tuberculous woman upon her," at which point Dr. Bjerre gave her some instances of such transfer of symptoms and feelings upon one's self.

For seven weeks this was continued every other day, with absolutely no obvious effect on the attitude as a whole. It was even difficult to keep her from insulting her chief and from losing her position. Dr. Bjerre nevertheless felt a certain change and he finally decided upon a heroic step. He said he began to be tormented by a doubt that possibly her persecution was after all not real and he wanted some certainty. He suggested that he might make an inquiry with a colleague whom she had mentioned several times who would be sure to know if there was anything in it. Dr. Bjerre mentioned this several times but waited patiently although she had consented; he made her wait, kept her in an expectant mood and finally spoke to the physician, who merely corroborated that the patient was a case of paranoia and gave a number of interesting incidents of her previous life.

On February 28, Dr. Bjerre told the patient that the physician had not heard the slightest thing of her relations to her lover or of any persecutions, and that he was absolutely convinced that not a single person had had any bad thoughts or words about her. The patient was quite surprised at the detailed account of this interview; she could hardly speak. The fact that this family friend was totally ignorant of the supposed events was the first real impetus in the direction of relief. The patient's uncertainty about little points began to get concentrated, and Dr. Bjerre could risk replacing his usual comment "that may be so" into "you have been absolutely mistaken." A new review of the topics showed that her unbelieving smile began to be replaced by attentive listening, and an obvious reaction to the continued assurance that she soon would experience a complete inward clearing-up; that she would soon see that what appeared to her as an external fact had had its origin in her own soul. During this period she still noticed

signs but they seemed more distant, less impressive; she could go to the shops without being troubled; at the office things were more satisfactory. She found flowers on her desk given her by the daughter of a woman she had supposed to be her secret enemy; the cashier became more polite. On March 10 she reported that two memories had come up in her mind the last two days; she not did know why; the one was the reminiscence of her calling, at the age of seventeen, with her sister on a girl who had an illegitimate child. They found the young father there, and she remembered the enchantment over the happy atmosphere. At the same time she expressed her indignation over the necessity of lying and deceit which the resistance of the family to the marriage and social prejudices had necessitated. The second memory referred to a girl with whom she had been confirmed. She gradually ceased to hear from her. A few years later she heard a report that the friend appeared sick and changed and that shortly after that in the English boarding school at which she lived a dead child had been found, and that she was accused of infanticide. It was, however, shown that the child never had lived, but her friend was disgraced and had to go to America to hide herself. Here again the patient expressed most valiantly not only her sympathetic feeling for her friend but the feeling of injustice concerning the treatment of her sex, and the indignity of a morality which did not allow a woman the right to determine her own course in life. At this point Dr. Bjerre asked her whether she could guess herself why these memories came up from the subconscious just at this point. Reluctantly she admits the connection with what Dr. Bjerre had told her concerning morbid identifications and the like. She began to realize that unconsciously she confused her own fate with that of her friend. This was the crucial point of her delusions of persecution. Her own persecution has been the persecution against her friend. She found that the situation in many respects was similar to her friend's; she was afraid of pregnancy and unconsciously made the inferences of the consequences; the unconscious struggle with the enemies of womans' rights prepared her to be persecuted by them all, and the pathological process followed its own course.

The conflicts between the complex and reality were not at an end: doubts wake up from time to time and the delusions assert themselves; she cannot throw aside the thousand proofs of the persecution, and she cannot believe that her happiness of being relieved could be real. At this point Dr. Bjerre proposed to ask the latest accession to the cohort of persecutors. The patient wanted to think it over. She wrote her permission on March 24, and on April 1 Dr. Bjerre could tell her that the lady had not the slightest idea of any persecution and the victory was won for good. The patient continued to see the physician once a week until the beginning of June, and after that from time to time. She herself expressed the desire that her case be published, as it might help some other persons. It may be that the death of the father of the patient on January 10 might have helped in releasing the

patient from her set attitude; she did not, however, show anything on the surface.

Interpretation and Discussion of Case.—Any student who is sufficiently sensitized to the bearing of the various components of this biography and the gradual ramification of divergent and yet morbidly unified trends, will get his best help from a repeated perusal of the full account of such a case.

Bjerre himself discussed briefly the theoretical aspects of the disease and of his treatment. He accepts Bleuler's emphasis of the nature of the complex, but does not consider this sufficient. There are additional mechanisms at work: the repression of sexuality, the unusually marked "male protest," peculiar sublimations; and also constitutional abnormalities.

Freud pointed to the process of repression: In hysteria it leads to *conversion into body innervation*, in psychasthenics to *substitutions*, and in paranoia to *projection*. According to Ferenczi, the psychoneurotic suffers from expansion and the paranoic from shrinking of the ego (or in view of the ever-present self-emphasis, a condensation of the ego).

Freud himself defines the projection as follows: An inner realization (perception) is suppressed and its content reappears somewhat disfigured, as a perception from the outside. The disfigurement in delusion of persecution is love transformed into hatred. This, to be sure, is not equally marked in all paranoias and also occurs under other conditions. The real process of repression consists in the detachment of the libido from the formerly beloved person and objects. It is not the repressed feeling that is projected outward; it is the reversed repressed feeling that returns from without.

In Bjerre's case, there are several points worth additional notice. The patient evidently had strong sexual tendencies to start with, but she dealt with them as if with an enemy. As a little child she masturbated, but her mother broke her of the tendency. At seven she read God's curse on women and could only be quieted by the older sister telling her that the curse only referred to women who had a husband and children. After this she revolted against the thought of marriage and of the wedding-night, whatever that might bring with it. Hence the "male protest," to use a phrase of Adler's, the feeling that to give in would mean defeat and surrender, and the insistence on a dominant and leading independence. An infantile reminiscence which welled up on visiting the bedroom of the new home of a friend brought to her a picture of the double bed of her parental home from which a mysterious fright and peculiar noises emanated which filled her with anxiety while she still had her bed in the room of her parents. And with this goes the fact that her father appears as the oppressor and his death comes to her, without her conscious realization, like a relief. Another fact of interest is that about the age of seventeen she considered herself for some time exposed to antipathic feeling and insults of a young man, and then was surprised when one day he told her that he loved her and

had done everything to please her. She thus proved herself early liable to misinterpret actuality in this field, and at eighteen she started upon that remarkable spree of fancy, the correspondence carried on for twenty years, keeping her aloof from actuality in a world of fiction and winning out over a real affection she developed in her twenties but turned down after seven years of doubt and conflict. She must have been led by a very potent feeling to be able to avoid a meeting with her fancied ideal for all these years. When disillusioned, she relapsed into unrest and began to masturbate again, and carried this on even during the period of sexual relation with the man into whose arms she was drawn by her morbid desire for independence, with the only result that she lost even more ground and came to identify herself with the girl who had been prosecuted on account of her illegitimate pregnancy. Another side-light is the striking dependence on and association with her older sister, and another a dream in which she fell unconscious into the arms of a woman in a situation suggesting a dream fancy of masturbatory reaction type. With the surrender to a man whom she hardly loved she hoped to "be freed of a compulsion which she had always felt." The men most involved in her actual life, the correspondent and the later lover play no part in the persecutions. The women's clubs however are so prominent that one might suspect that the case corroborates Freud's assumption that "all paranoics went to pieces over the conflict with their subconsciously increased homosexuality." It does not, however, seem necessary to assume that the *delusions* of persecution are the essence of the paranoic character and the defence against a homosexual wish-fancy; the "complex" as such explains the persecutions sufficiently. The patient herself ascribes an important role to the tendency to think not with the intellect but with her feelings. This defect of the apperceptive function would seem to have been constitutional, and not a development just preceding the psychosis. She is lacking in her feeling for reality, satisfied with day-dreams and correspondence, dependent on her sister. Without the constitutional difficulty she could not have been swayed by impressions and feeling concerning the young man at seventeen, and also up to the time the feeling of persecution took hold of her. The collapse of the sublimation in the form of her correspondence scheme led to disappointment and hatred as the dominant note, and the second world of fancy became one of persecution.

If this is the reconstruction of her psychosis, what is the mechanism of the cure? Bjerre considers as the first and most potent factor and pivot the feeling of reliance and security inspired by the physician, then certain traits of gratitude, and all these with the maintenance of a distance which had to be maintained to permit the discussion of the intimate events of her life. No familiarity was allowed to spring up; Bjerre never antagonized her "male protest," and the strong attacks against man and his position, and yet gradually made her share his assumption of the futility of any dispute on this point, which was explained as mainly a construction by disharmonious persons.

Much of the hatred thus became irrelevant and died away, and there was some space for gratitude again, and a powerful chance for better and more effective sublimation under the guidance of the physician.

Those who expect to reduce a process of disease and cure to one or two clean-cut formulas of somatic pathology and therapy, are bound to derive little from such an analysis. A whole world of "things as they are," refusing a summary process of telescoping, has to be handled by the physician; and each general attempting to get a control over the conflicting and disharmonious forces must be ready to apply the principles of tactics according to his own way of attaining success. Bjerre's case shows that a great deal can be done without entering into all the details of sexual fancy; that much of its inner adjustment can safely be left to an intelligent patient; and that an adjustment of the more overt conflicts can gradually come through a process of summation where a blunt effort at persuasion would fail.

Types of Paranoic Trend.—A question of considerable interest will no doubt be that of any possible difference of the foundation and forecast and avenues of relief in the different topics of the paranoic trend.

One type of case may be adduced as an instance, viz., the cases of paranoia of jealousy. Jealousy is possible within normal bounds, or as an obsession or as a paranoic conviction. In either case the foundation seems to contain a common factor, viz., that of a real or imaginative life which would give ample opportunity for jealousy or complaints of infidelity to the *morbidly suspected victim;* an excessively active yearning for a frequently wide range of objects of love, usually combined with incapacity for normal satisfaction of the desire, by relative or complete impotence. Another type of borderland phenomena is what Magnan calls "la folie des antivivisectionistes," beyond a doubt a reversed projection of repressed fancies of cruelty and possibly sadism.

Homosexual Factors.—Freud has lately gone much farther in trying to reduce *all* paranoias to a very simple general paradigm, viz., that of some form of repressed homosexual longing or homosexual conflict.

His analysis of the autobiography of Dr. Schreber, and the experience of C. G. Jung and S. Ferenczi and other pupils of his, allowed him to claim directly some formulas which may readily become a valuable help and suggestion in the unravelling of the mental world of these cases. Freud points out the importance of a certain stage of sex-development of the individual which has been termed narcissism. It expresses the fact that the child in its natural tendency to focus its sexual tendencies during the auto-erotic period of infancy and childhood takes its own body as the object of its equivalents of love before it focusses them on another person. From this stage, which may last a long time, the transition to the attractiveness of the other sex is made by attraction of, or fancies about, individuals with sexual organs similar to those of the subject; in other words the focussing of the sex-tendencies goes by the way of homosexual object to the normal heterosexuality of mature life. Persons with lasting homosexuality

are persons who never succeeded in detaching themselves from this intermediate stage. The homosexual component finds its outlet in part in friendships, in companionship, and finally in a sense for the common good of humanity. "Persons who cannot rise completely out of the stage of narcissism and are thus prematurely fixed or arrested in the evolution of their dispositions, are exposed to the danger that a flood of libido which finds no outlet, sexualizes their social tendencies and reverts the sublimations achieved in the course of development." Such a regresssion may be precipitated by disappointment with the other sex or failures in the social career, or outbursts of the sexual needs. Analysis shows that the paranoic and schizophrenic patients carry on a struggle against such a sexualization of their social tendencies, and that their weak spot lies in their development in the phase between autoerotism, narcissism, and homosexuality. Freud simplifies the various possibilities as follows:

1. A man with paranoia subconsciously struggles with the more or less disguised longing of his tendencies for another man. His outlet or form of remonstrance breaks into consciousness through the mechanism of projection with the assertion: "He hates me; he persecutes me." Very briefly put the subconscious struggle and remonstrace, "I do not love him, I hate him," is admitted to full consciouness after a transformation into, "he persecutes me." The persecutor in *persecutory paranoia* is indeed shown by analysis to be the focus of previous attraction.

2. Erotomania represents a different type of evasion: the remonstrance says, "I do not love him (or my interests are not focussed on him); I love *her*." Projection again forces the conviction in the form of a reversal: "I do not love him; I love her; the fact is: *she* loves *me*" (the usual contention in erotomania); or at least "I love her *and* she loves me."

As the third type, Freud points to the delusion of jealousy.

Paranoia of Jealousy.—Freud distinguishes:

(*a*) The jealousy of the alcoholic. We know that alcohol destroys inhibitions and reverses sublimations. Frequently a man is driven to alcoholism by non-gratification with his wife. If an individual with fixation in the homosexual phase has his tendencies turned back into the subconsciously persistent direction, he reacts with remonstrances according to the formula: "Not *I* love the man; *she* loves him"—hence the accusation that the wife loves those on whom the subconscious interests focus. This, according to Freud, makes unnecessary any further disfigurement by the process of projection, because the loving subject is the wife, and she and her doings are already a matter of external observation; whereas in the cases of persecution the formula is the protest: "I do not love him; I hate him;" and consciously this is proved "because he persecutes me."

(*b*) In a paranoia of jealousy of a woman the formula is: Not, "I love the woman," but "he loves them," viz., all those that would please her in her excessive narcissism and homosexuality; the persons are often old,

like the servants or friends of early childhood or sisters, rather than like the type one would expect a man to take to.

A final possibility of contradiction to the repressed assertions "I love him" or "I love her" would be that "I do not love at all and certainly do not love any person;" after all an equivalent to "I love only myself;" and this could be correlated with the "exaggerated ego" and the overestimation of the self—a feature which paranoia and narcissism and infancy in general have strikingly in common, and which in turn cannot be wiped out as effectively by any other force but real love for others.

Process of Formation of Paranoia.—The whole process of the formation of paranoia would according to this conception depend (1) on the fixation of a stage of infantile evolution, a lagging behind and consequent repression of the mode of satisfying a group of tendencies on account of the incompatibility with the rest of one's life; (2) the repression of problems and tendencies of the moment, related to the fundamental gap; and (3) the failure of repression, the breaking through, the return of the repressed material, in one form or another, and in paranoia characteristically in the form of projection, the assignment of the reaction to other persons.

Readjustments and Prognosis.—To appreciate fully these schematizations it is necessary to study the large material of psycho-analytical literature. So far the issue is mainly one of interpretation. The application in the form of treatment is a problem which can only be answered with more experience in the reconstructive study and therapy of the different types of cases. It stands to reason that the very nature of the delusions is apt to throw a light on the depth of the actual disorder of the personality and on the material available for any reconstruction, and thereby on the chances of therapeutic success. It seems safest for the chances of the patient to assume that no law of prognosis can be laid down and that the conditions must be judged not only from case to case, but as one goes along in the work on each case. It might of course happen that under this principle of liberality an unwise optimism might lead families to very unwise efforts in no way justified by results. An advocacy of the extremely time-consuming and taxing process of psycho-analysis would not be fair outside of exceptional cases, and under sufficiently promising conditions.

Warning Concerning Expensive Treatment.—In all chronic diseases the physician has to make it clear to the family that the first condition is to strike a level of maintenance and expense which can be maintained for a lifetime, and within this level those courses should get the preference which assure not only safety, but also attention to any chances of collaboration for a reconstruction or at least more life-like adaptation of the patient. It is a disgrace to see extravagant sums squandered at the time of an acute flurry during which no collaboration with the patient is possible, and then to be forced to relegate the patient to the other extreme of *low* standards of care when the storm has blown over and chances for reconstruction might normally be expected to become better again.

To obtain a fair balance of judgment, the physician cannot do better than turn to the cases in which less exhaustive efforts and nature have brought about the unusual result of a cure.

Conditions Leading to Recovery.—A small group of cases reported by August Hoch[1] showed very clearly the possibilities and the responsibility of the physicians to search for the existence of more superficial undercurrents in the patient's mind, the readjustment of which might and will under conditions lead to a recovery. Unfortunately the case records have not been published. The main result of his study is that in the actual antecedents of his patients and in the problems of life they had to handle, there were certain opportunities of better adjustment which opened the way to therapeutic work.

Hoch pointed out that among the paranoic states there were cases, and that they probably represented a large proportion, in which the psychogenesis could be clearly traced when the facts of the cases were really accessible. The theory of the development of paranoic states Hoch summarized briefly as follows, stating that besides basing his ideas upon facts of his own studies he had been influenced by the work of Adolf Meyer, Freud, Bleuler and Jung: Every person has certain points on which he is especially sensitive. He has ideas or complexes of ideas which are associated with very strong feelings. These complexes refer either to personal defects, shortcomings, limitations, or to feeling of guilt, remorse, shame; on the other hand, to certain longings and desires. We may, therefore, generally speaking, say that they belong either to the realm of self-assertion or to the sexual sphere, in the broadest sense of the term. Now, most people are able to get square with such things, partly because their nature is such that these feelings never reach anything like a great intensity, or partly also because they have a healthy way of dealing with these matters. Other people do *not* get square with such difficulties. They do not acquire balancing, healthy habits, such as a healthy turning away from one's difficulties to outside interests, or a habit of unburdening or a certain aggressiveness and the like. While, then, such undercurrents, as we may call these complexes, when they are of any intensity, have themselves a tendency to set narrower and narrower limits to the interest and to create a certain fascination, they often become a menace to the sanity of mind, also because they are not balanced sufficiently by sound mental tendencies. In this way there develops a growing disharmony which gradually, or sometimes under the influence of acute causes, physical or mental, may suddenly lead to an unbalancing of the mind; finally, the undercurrents break through to the surface. But the mind, even in the cases in which the undercurrents are not handled properly, makes certain miscarried attempts at readjustment. Thus, the feelings of defect and the longings do not come to the surface as such, but are transformed; the former give rise to a general suspiciousness and delusions of persecution, probably for the same reason that

[1] Medical Record, 1907, vol. lxxi, pp. 708–711.

we are inclined to blame everyone else except ourselves when anything which we do goes wrong; the latter give rise to ideas that the innermost longings are fulfilled. And there are still other forms of such miscarried adjustments. We see, then, that we have two things, the undercurrents and the abnormal manner of dealing with these undercurrents, upon which we should lay stress as important in the causation of these paranoic states. To a certain extent this division is, of course, artificial and the two principles often enough overlap greatly. Then again it is often difficult to find a correct or a definite formula for that which we have called abnormal mental habits, or difficult to pick out from among the complex fabric of mental reactions those which are disastrous, to estimate the dangers of certain combinations, or to correctly gauge the value of saving traits. Naturally it will often be a combination of traits rather than a single trait which we have to consider, and while we speak of some reactions as dangerous mental habits they may exist in certain combinations in which they are sufficiently safeguarded. It is also very evident that causes other than an unhealthy manner of dealing with the undercurrents may enter into the causal constellation as well—such as influences which increase the strength of the undercurrents, or influences which, in other ways than those indicated, lessen the resistance, such as the action of alcohol, the menopause, and the like. These principles were demonstrated by means of careful analysis of 4 cases and certain indications for treatment were discussed.

The discussion brought out a number of cases in which the delusions had remained limited, and on the part of some an orthodox assumption that if the case were recoverable it was only a paranoid disorder. Jelliffe took the broadest view, pointing to a wide range of reasons why it is better to deal with the topic from the point of view of the existence and nature of delusions rather than a set and dogmatic nosological entity.

Hoch mainly wanted to bring out the fact that certain paranoic states were produced by purely mental causes, *i. e.*, by conflicts and unhygienic ways of dealing with them, and that they were more or less amenable to treatment early in the course, but naturally he did not want to claim that old cases of paranoia could thus be influenced. In order to help such cases it is necessary that one could still get at the root of things and explain to the patient the genesis of his delusions and train him to healthy mental habits.

Mechanism of Recovery.—H. Bertschinger[1] in a study on the mechanisms of recovery in schizophrenia gives an excellent review of how the factors which determine the normal mental life are also at work in these side-tracked types. "We infer the existence of a mental disorder in a person when his utterances and actions are in contradiction with his real environment shared by us and familiar to us, and also with his actual social position and former personality, and when they cannot

[1] Heilungsvorgaenge bei Schizophrenen., Allg. Zeitschr. f. Psychiatrie, vol. lxviii, pp. 209–222.

be explained from the contents of consciousness which we have a right logically to expect in him. Wherever we are able to analyze the morbid reactions, they turn out to be, probably without exception, reactions sufficiently accounted for by wish-fulfilments, dreaming symbolized, or often enough without disguise or transformation which outright assumed the same character of reality as the objective outside world. The breaking-out of the disease is a breaking-through of the subconscious into the wake-consciousness. Some cases shut out the normal world completely and appear delirious; others are perplexed by the conflicts between their dream-world and reality; others mixed the two and appear contradictory, incalculable and queer; or their compromises appear odd, affected, and stereotyped. Paranoid patients often display clearly a dissociation of consciousness and personality; in the main they behave in keeping with the actual outside world, and only on certain points of contact between the real and the unreal contents of consciousness does the morbid part of the personality come into evidence. Improvement or recovery means a gradual or sudden return to conduct in keeping with the actual situation."

The analysis of these readjustments proved to reveal three mechanisms:

(1) *The Correction of the Delusions.*—That patients distinguish between hallucinations and real perception is frequent and often marks a change for the better. A patient sees that no persons can be in a space from which she hears voices; hence "I must hear voices;" or a suspicious wall proves to be solid, hence "I must be crazy." Imaginary and real visits from relatives can be distinguished: the real visitor comes through the door; the imaginary visitor is present at once. Or experience with the association experiments leads a patient to recognize the hallucinations as "associations;" or a paranoid patient begins to comfort himself that the offensive remarks of his persecutors probably were meant to be quite harmless; a higher power had suggested them to them so that he might guess their sense. He distinguished higher voices and lower voices, and after a while spoke of combinations of ideas, and still later as his own inner reflections. Shortly he could be discharged. Bertschinger mentions two cases in which very disturbing but relatively recent complexes yielded clearly and promptly to a rational ventilation. One of these came to the hospital in a profound depression, after a paranoid development due to the loss of his position over his misdemeanor with the wife of a friend. He had developed the idea that he was persecuted. He heard the reproachful voices of his relatives, wanted to be arrested, made two attempts at suicide (swallowing glass and putting glass up the rectum); he was persecuted for financial, political, or religious reasons, pulled about by two opposing forces, exchanged, etc. A few days after the admission, Dr. Bertschinger's explanation of his situation was accepted, with some skepticism, and more freely three days later; and within two weeks he could be discharged, after having himself explained quite a number of details. Another patient with a subacute hallucinosis was led to recognize the

hallucinatory nature of his experiences by observing other patients, and could be discharged in two weeks. All these cases with conscious correction of the paranoid symptoms were over thirty years old.

(2) *Transsymbolization is a Partial Remedy.*—Part of the real environment is interpreted in keeping with the morbid wish-fulfilment and the patient gets along better. The institution is looked upon as an orphanage; or in another patient as barracks; or in three somewhat imbecile women, the pulling of one or more teeth brought relief evidently through association with the thought of delivery. Other cases replace paranoid discrepancies by subjective physical ailments: "eczema," "cystitis," etc., or dryness of the nose, etc. Or a woman of fifty-six who fled in her delusions from an unhappy marriage by imagining that she was in America, and that people spoke American, finally transferred her husband to America, and accepted the home environment; but only with the assumption that the husband who called on her was really not the same man, etc.

(3) *Evasion of the Complex.*—This which I should rather call *repression* of the repressed material that had broken through is a third form of rather less favorable improvement. The episodes which "will out" are lived through to a certain point of conclusion, and they and the whole period of illness are then suppressed as if they had never occurred. This is more frequent in florid fanciful dementia præcox than in frank paranoid states. Occasionally an emotionally strong and impressive experience, or a reconquest of solid ground in occupation can become the turning-point.

Analysis of Cases of Recovery.—The majority of the cases of recovery of "paranoia" reported in the literature including a small group of cases reported by Folsom before the Boston Society of Neurology and Psychiatry but unfortunately not published, are not altogether easy to analyze. On the one hand the biographic account is not always complete, and the subsequent history following the recovery is missing, as in Freud's analysis of 1896; or there is at least no thorough retrospective analysis by a competent examiner in the recovered period. And on the other hand, the probable causes of the recovery frequently are hidden and the number of cases where the improvement occurs along the line of one's efforts is perhaps not demonstrably greater than that in which one is finally taken more or less by surprise after one has given up the hope of a success. This holds, to be sure, mainly for the period before real efforts with a well-considered technique of psycho-analysis could be in use. To me, personally, the last four years without adequate hospital facilities and much interrupted work of a building period furnished no opportunities to undertake the arduous work with the sufficient continuity of uninterrupted effort. A few dispensary cases and private cases have been able, more or less, to hold their own in their respective situations in sufficiently neutral and guarded conditions of life. In one case of the Ward's Island period (1902-1909), recovery came on after a practical surrender of the efforts about one year after the transfer of the patient to a chronic division.

I reproduce here this and a few other records from the literature because a knowledge of these concrete instances will take away much of the dogmatism concerning diagnoses.

S. F., aged fifty-one years, admitted August 16, 1905; nativity, Germany.

Family History.—No mental or nervous disease in the grandparents. Her father was a healthy man and died at eighty-six. Her mother was a quick-tempered and irritable woman. A paternal uncle drank to excess, and about the age of forty developed ideas of persecution. After six months in a santarium he *recovered* and died ten years later. A daughter of this uncle has been an inmate of a hospital for eight years (since the age of thirty). A son of this uncle was always peculiar and eccentric, died at the age of forty.

The patient is the youngest of nine children. A brother developed ideas of reference at about thirty-two and was treated in a hospital for two or three months. He retained ideas of persecution for about three years, and then is said to have *recovered.*

Personal History.—The patient was born March, 1854. Her sister thinks her early development was normal. From the age of ten she suffered from frontal headaches and some gastro-intestinal trouble, which was diagnosticated "intestinal catarrh." She was at school from seven until sixteen, and was an unusually bright pupil. From her youth, however, she was always regarded as different from the other children. She was quick-tempered, rather irritable, and passionate. She studied music until nineteen, and then took a position in S—— (Germany) as housekeeper; she left in a year because of trouble with one of the servants. From that time (1874) until 1890 she went back and forth between Germany and America, making as many as fifteen trips. During this period she gave music lessons and acted as governess. She was capable, but because of her restless disposition she changed her position very often; she saved no money and was very extravagant in her tastes. About 1890 she came to New York to live with her sister; she then gave music lessons for the next ten years, seemed more settled, and applied herself well to her work. She did not drink. Her menstruation was normal; the menopause occurred at the age of thirty-nine. Her sister knows nothing of sexual irregularities which the patient herself relates.

Onset of the Psychosis.—Since about 1899 the patient has been somewhat overreligious (this she explains by saying that it is out of regret for former sexual lapses). About six years ago she began attending Dr. C.'s church; she had some correspondence with Dr. C. regarding her use of the church organ for practice. She misinterpreted Dr. C.'s letters, wrote to him almost daily until a letter came from Dr. C.'s wife asking that the correspondence be stopped. She complied with this request. Shortly afterward left her sister's for three months and lived alone.

About five years ago she began to attend another church, where she became interested in Asst. Rector, Dr. D., she talked much about the eloquence of his sermons and the attractive qualities of the man. She

finally applied to Dr. D. to assist her to become a deaconess, but was referred to the rector, who granted her an interview, and advised her that she was too old. She felt downhearted and discouraged over this, but Dr. D. wrote her a sympathetic letter asking that she keep him informed as to her whereabouts, that he would "try to help her and never forget her." She entirely mistook the meaning of this phrase, and then began to write affectionate letters to the pastor and went to church with great regularity.

In 1903 she declared as she left the church one Sunday afternoon that Dr. D. looked at her "sharp-like," with love in his eyes; this annoyed her, because she thought people would notice it. She therefore wrote him her objections, and she stopped going to his church. It seems that Dr. D. had sent a special messenger to her sister's house a few months previously requesting that she cease writing letters and stop attending his church.

About this time she believed that sermons appearing in the newspapers, although signed by other names, were really the work of Dr. D.

Since May, 1904, she has had much difficulty in finding employment. She became irritable, was restless at home, answered many advertisements, but could obtain no position. At about this period she expressed the idea that she was followed and watched on the street at the instigation of Dr. D., and that it was in the nature of a punishment for her previous sexual indiscretions; when she answered an advertisement she was given the wrong number in order to make a fool of her; people spat on her on the street; she was followed by reporters, and everyone treated her with contempt.

December, 1904, she decided to return to Germany. On the way over people on shipboard made such remarks as: "Ah, you have been in S——. The Lord will not fail you; the past is sometimes well brought up." In Germany she felt no better. In July, 1905, she returned to the United States. A few days later she disappeared from her sister's house and was not heard of again until a few weeks later, when she was admitted to Bellevue. The patient herself said that she had sought a position without success and had finally returned to New York, where she secured a place for three weeks. The people soon tired of her and made suggestive remarks, which led to her leaving. Finally she decided to sit down in the park and wait for a policeman to take her to Bellevue. She had determined to ascertain whether or not she was insane, because her people had told her that she was not in her right mind. At Bellevue she seemed to have extensive and well-systematized delusions and also gave accounts of hallucinations of hearing.

On admission the patient was found to be a rather intelligent woman, clear in orientation and grasp, with no defect in grasp of the past, and in manner quiet, composed, and cheerful in mood. When, however, her delusions were discussed she became slightly agitated, and talked more rapidly and emphatically as she narrated her troubles. The following is a brief outline of the history which she gave:

At the age of sixteen her sister taught her unnatural practices, and

from that time up to about a year ago she has indulged in self-abuse. When the patient was nineteen years old her sister had an illegitinate child; her mother knew of this but did not tell the patient; she looks now with suspicion and regret upon this affair, because two or three years later she herself had intercourse with a man, and she thinks she would not have fallen if she had known of her sister's disgrace.

From twenty-three to thirty-two she indulged in indiscriminate sexual intercourse with men whom she knew very little. She never had children. She had had no such relations since she was thirty-two. She said: "I was superficial, you might say; I wasn't bright even—I didn't realize what I was doing—it was the easiest way out of it—I cared nothing for that sort of thing or for the men." This conduct worried her none at all until six years ago; at that time the struggle for existence became severe; she could find no more pupils for the piano; she could not get work as a domestic; she became over-religious and began to attend church with great regularity. Six years ago while practising on the organ at Dr. C.'s church she became infatuated first with Dr. C.'s sermons and later with the man himself. She wrote many letters to him until at the end of a year his wife wrote to her and asked her to stop. This she did, left his church, and gave up the organ. Directly after this (five years ago) she began to attend another church and listen to the sermons of Dr. D.; she applied to him for assistence in getting a position, he tried to help her, wrote her several letters in this connection. From that time until December, 1903, she continued to write him letters. He then sent a special messenger to the house of her sister and asked that she be kept from the church and that she stop writing letters.

In May, 1904, she first noticed that people were watching and ridiculing her, spitting in front of her and making suggestive remarks wherever she went. She explained this to herself by saying Dr. D. was punishing her for her early indiscretion in sexual matters. She again began to write to Dr. D. asking him to discontinue this sort of annoyance. She could get nothing to do, and in December, 1904, she decided to go back to Germany and live there. On the way over the people on the ship said in her hearing: "Ah, you have been in S——. The Lord will not fail you," etc., things that she had heard continually on this side. In Germany it was a repetition of the same thing, and in July, 1905, she returned to this country. She could get no work, even hotels would not take her in, when she had money to pay for her maintenance. She answered newspaper advertisements to no effect, and finally she went to Central Park to be picked up by a policeman and taken to Bellevue to have her mind examined.

The physical examination showed an individual twenty or thirty pounds under weight, old scar on left leg from operation for "scrofulous knee," frequent attacks of neuralgic headaches since ten years of age; soft, inconstant, systolic murmur of the apex, not transmitted.

August 26, 1905. Since admission the patient has been quiet and well-conducted, except for occasionally taking up remarks of a talkative

patient, then she gets very angry and threatens to assault the patient. She claims to have heard this patient say about her: "There comes that damn devil; didn't she flirt enough in church?" Another time she heard her say: "Here's that old bitch standing—did you have no blood poisoning yet—you need another dose." To-day she wrote a long letter addressed to President Roosevelt giving the history of her trouble and appealing for assistance.

May 10, 1906. At times the patient is in a depressed mood, claims that she has suffered more than any other woman. She considers that she is the humble instrument of a great reformation, her life is being held up to the people—"It is now a United States affair—it is in the hands of the law and has to go through"—"I have to be here to show the world what it is to lead such a life."

October 14, 1906. The patient is a resident in one of the quiet wards. She is well conducted and assists with the work. When interviewed she is in an agreeable mood and talks freely. She still hears remarks and the patients spit in front of her. She, however, now feels herself above noticing these things. Recently she has begun to be put under the influence of some machine—perhaps it is electricity, and it causes her to have sexual feelings. She still speaks of the great reformation that is going on, in which she occupies the position of a "tool." Dr. D. was only one of the many individuals taking part in the whole movement, which she describes as a "moral cleansing." The manager of the affair is a man whom she recognized twenty-one years ago; she does not know his name.

The family shows two instances of allopsychic paranoic development, an alcoholic paternal uncle (with delusions of persecution and recovery in six months; a daughter of this man has been insane eight years, since the age of thirty, and a son eccentric), and a brother (ideas of reference and persecution, with recovery in three years). The mother was quick-tempered and irritable. The patient had early frontal headache, was misled into abnormal sexual practices, later drifted into sexual looseness (a sister had an illegitimate child, but the patient only learned of this later): an unsteady, disharmonious character. Under growing stress of life and decline of efficiency a morbid adjustment developed; a mingling of religious and sexual issues, belated yearnings, with growing irritability, restlessness and inefficiency; a special exacerbation with morbid ideas of reference and dissociated self-reproach, especially during a trip to Germany, and final failure on her return. Half-voluntary commitment. Development of systematization—she is the humble instrument of a great reformation; she is a tool of the moral cleansing; it is now a United States affair; many individuals are involved. The manager of the affair is an unknown man whom she recognized twenty-one years ago. Interpretation of remarks and of spitting in the sense of her trend; probably also distinct corresponding hallucinations at times in periods of special strain. Recently passive experience of sexual feelings. Fairly classical chronic paranoic development. Very little imaginative material. Systematization, with slightly expan-

sive reaction: retrospective interpretations. Lately ideas of sexual influence.

Etiology.—Heredity in two generations, partly similar. Side-tracking of sexual instincts. Late love aspirations with religious moralizing tinge. Reform system.

Note the contrast between the conventional account and the patient's full account.

About a year after the patient was transferred to a service for chronic patients, she wrote an interesting account of a certain transformation of her condition, which brings this case to some extent within the realm of depressive states. The following are her own notes:

"First of all when I was removed to this building I had an intense feeling of fear which was most particularly felt around the neck and heart. Of course that was nothing new to me as I have had the same feeling from the start whence I began to watch over myself; a thing that never struck me before. The sight of the red light brought on an increased feeling of horror and the hallucinations crowded in quickly so much that at times the throwing-off of horrid thoughts seemed impossible. It began with the strong belief of immortality of human life and the thought that my dear parents were alive made itself very distinct, so much that I mentioned it to my sister. A feeling of stifling I could hardly throw off for a little while and in vain I tried to discover from where it originated. Next came the very strong thought that my whole family was on the island and the feeling of agony that they should have to undergo such trials caused me deathly horror. I was in a continuous state of doubt and St. Thomas could surely never have felt the anguish of doubt as I felt it. That we all could transform into animals, lions, birds, etc., was a very nagging thought and caused me much anxiety. An idea that seemed absurd and abnormal to me was that my father was a poorly paid schoolmaster, though his earthly life should have been an Emperor and we of course princes and princesses. That those ideas were not my own is best proved when I told my sister that the people around me say such horrid things about us; it seemed to me most queer that my parents that should have been holding so exalted a position should have been so thoroughly degraded. I had not the power to throw off the thoughts as quickly as they came, but began brooding about them and that showed how little I knew about the sickness of the insane. To-day I know that everything was hallucinations that have been transferred from the insane to my mind, because I know that their sick and impossible thoughts are inexhaustible. The thought that those ideas might grow stable was quite an object of fear and horror to me. I practically had not the first idea about the nature of insanity and I congratulate myself and my dear folks that with the help of God I escaped so sad a fate. In this ward where I am now the patients began to make remarks about the filth that I face every night and in connection have been the thoughts that worried me unspeakably. It grew so strong that two or three nights I was harassed beyond measure and kept myself

awake. At one morning or two I screamed to God for mercy so much I felt the horror of an unprotected life. I have never been warned of immorality from the days of childhood up to now and one might search in vain for a fundament in such a life. The thought that my family had undergone shame and disgrace for the sake of a good cause has given me the strength to see my way. Any thought that comes to me now I do not even face because it is insanity. Dr. Holmes has told me that it is my task to work on this island and I have learned under deathly struggle what that work is. That I prefer a poor freedom in life to that job in the asylum goes without saying and I am waiting anxiously for my release from the institution through my sister."

Shortly after this, her physician, Dr. Lorenz, could convince himself of the gradual development of perfect insight on the part of the patient and a desire to live with her sister. Apart from the fact that the patient began to make comparisons between her own condition and that of other patients, and that she applied herself to her work and became more communicative with one of the nurses, the examination did not disclose very clear clues as to the factors which had led to the transformation and to the recovery, which according to reports has continued. In the patient's own mind the therapeutic conversations and attempts at correction of her attitude of the first part of her stay played a certain part, but only as material remembered without any special feeling that it had had a strong dynamic influence in the readjustment.

It is clear on the other hand from this account that we deal with a family with a distinct bias to paranoid developments of a recoverable kind. I refer especially to the brother who recovered from an attack lasting three years. Yet during the attack there was absolutely nothing that could have made one waver in the assumption of a clear paranoia.

Another patient, younger, and the victim of conviction that an employer was persecuting her by denying his affection to her was deported and writes from abroad that she has a very good position again as a governess.

An unusual mode of extinction of a paranoic attitude was brought to my notice by Dr. Taddiken. One of his patients developed or assumed a complete amnesia for the entire paranoic topic. Neither searching conversations nor association tests could bring out any acceptance or reminiscence of false interpretations and acts having a bearing on the delusional complexes. The return to the old surroundings seems, however, to have brought out some of the old complexes again in the course of a year or more.

Recoveries of Paranoia.—There are in the literature a small number of cases which are claimed as recoveries of paranoia. The following is a brief abstract of the case published by H. Freyberg:[1] A teacher, free of hereditary taint, who at twenty-four had gone through a depression

[1] Ein Fall chronischer Paranoia mit Ausgang in Heilung, Allg. z. f. Psychiatrie, vol. lviii, pp. 29–60.

of several months, because of a rumor that the public was not satisfied with his work, about thirteen years later had a conflict with a subordinate teacher, became sleepless, suffered in his nutrition, had headaches, and under the influences of a rash drink of a pint of cognac, made a futile attempt to shoot himself. He felt he had ruined his career. The onset was marked by self-accusations and he felt "willenlos und muthlos." Within about a month all became "clear to him." He was generally hated, and the people were working against him by suggestion. He considered the letters of his wife falsified. From this time he began to evolve an interesting delusional system (see page 43), but not really of a characteristically paranoic character. He gave it up slowly, and investigated it by correspondence "to prevent a relapse," as the patient himself put it.

Van Deventer's patient, according to Petren's abstract referred to by Bjerre, refers to a woman, of forty-five years, of excellent intellect, but very sensitive temperament. Both her mother and her sister were rather nervous. She herself had had some brain disease at the age of twelve, from which she recovered completely. She always led a quiet and retired existence, and was in the full sense of the word a "good" person. At the age of twenty-two she had a long period of marked insomnia caused by a tapeworm. When she got rid of that, sleep returned, but there developed gradually a certain instability and irritability. The patient complained of the monotony of the street in which she lived and desired a change for a more animated life. At her urgent request another apartment was rented, and the former landlord was paid a compensation. Immediately after this the patient began to feel repentance over having forced the change in her overtense condition, but she was ashamed to speak to anybody about it. In order not to distress the family she tried to conceal it, and she then began to watch as to whether her neighbors observed anything in her. She began to feel that they showed a somewhat changed attitude toward her, and a morbid suspicion arose. She became more and more convinced that she was the object of derision and occasional smiles, and that several persons had conspired to besmudge her good name and reputation. As far as casual utterances of the patient would disclose, these delusions slowly increased in intensity since her thirtieth year. After a while she began to complain that her former acquaintances passed her in the street without greeting. Day and night she pondered as to who might be her persecutor, as she never had done anything bad. She found out that the persons whom she met in the street and who did not want to recognize her were in some way connected with her former landlord, and were members of the same society. Then everything became clear to her. She understood that she was a victim of the hatred of the former landlord because she had brought discredit on his house. From this moment she felt depressed and could not be cheerful and happy any longer. She observed all kinds of signs which proved that the landlord tried to make a show of her family and her self in all kinds of ways. If one of her acquaintances said something

in her presence she understood at once that it referred to her, and that it came from her persecutor. From this time she observed that persons who met her in the street made faces at her and looked at her with an air of disdain. Finally she was accused of all kinds of mean things in the streets and from the roofs, and everywhere she heard shouting that she had led a dissipated life, so that, to use her own expression, she came very near getting insane in her perplexity.

She was tortured in every way, natural and unnatural, physically and mentally, so that she finally became quite insensitive. Abscesses of the fingers, a cough, many sleepless nights, vomiting, pleurisy, attacks of perspiration, pains in the back, and the like, became part of a protracted suffering. The more she suffered the more her persecutor and his associates amused themselves with song and music and dance. She was accused by them of immoral acts, was "convicted in court without trial," and it was decided that she should be punished as a warning to others. In front of her home there happened daily the most shameful and immoral events. Finally, commitment became necessary, since she also developed the delusion that the food was poisoned and refused to eat. At the institution the patient was restless and wailing loudly; she covered her face with her hands. At first she refused to eat, and showed tendencies to suicide. She claimed that even in the institution they were trying to torture her in various ways, and thought that her family too had been committed in order to be subjected to the same inhuman treatment. The letters sent by the family to convince her of the contrary were considered as having been written by her enemies so as to mislead her. Day and night she was troubled by voices and had to listen to the most obnoxious and immoral talk, although she was pure and completely innocent and really a model for others. At the request of the persecutor she was treated by the attendants without any mercy, with scoffing and indignity, and she was made to suffer unspeakable tortures. They used the coarsest language; put before her the meanest food; gave her harmful drugs; troubled her body with insects, and tortured her in the most shameful manner; whereas her fellow-patients were treated with devotion and enjoyed extremely good care. Yet with it all, they wanted to force her to be cheerful, and to act like a dog coming to lick the hand that had thrown dirt at him. A book of nursing, which an attendant had left on a table, made her deeply incensed, and she thought the book had been put there so that she would look into it and then be accused of such immoral acts as she would not be able to discuss.

During the first part of her stay the patient was retired and gave only short and disgruntled replies, and rarely made any utterances concerning the delusions governing her, but from her expressions it was obvious that she referred everything that happened around her as related to her condition. Every glance, every movement, or expression, passages in the papers, and so on, were allusions. Finally she declared that she would only use signs and would put her thoughts on paper so that her words could not be misinterpreted. When her

family told her that she was wrong, she replied that they might be just as much in error as Koch was concerning tuberculin.

After a year and a half in the institution the patient became more tractable and more talkative, and gradually she began to occupy herself with reading and handwork. She said that she was no longer tortured so much, but she contined rather unfriendly and sulky, and spoke in a domineering tone, complaining of bad treatment, and made defensive movements when anybody spoke to her. She slept better, however, and had a good appetite, so that her general nutrition improved. A few months later the patient observed spontaneously that *she might have been mistaken.* Her having to go with the other patients had brought other thoughts to her; she became more and more agreeable and anxious to do things, and began to show complete insight. She did not, however, wish to be discharged until all her former delusions and products of a diseased brain would have disappeared completely.

When asked about her illness, the patient said that at first she had the idea that the things which took place on the street before her house before her commitment were being continued here; she considered the environment as comedians making fun of her and making of her a warning to others. Sometimes she was for hours mute with amazement at all the horrors which she had to witness, and she did not understand how she could be charged with immorality, being a perfectly innocent woman. Gradually the supposition began to come on that she was locked up to conceal her beauty so that she would not overshadow the others, and so that she would not jeopardize the male sex with her advanced views. But these ideas did not last long. After having been in the institution for one year she began to watch the things around her, and then observed how her fellow-patients spoke of voices and sounds which evidently existed only in their imagination, and then she began to realize that she was in a hospital for mental cases. After this she began to watch her fellow-patients more carefully, and soon concluded that she too had been under the influence of illusions and morbid imaginations. The friendly attitude of her environment finally brought her to the point of considering herself as a patient. After having been in the institution for more than a year and having uttered wishes only under the greatest necessity, she began to speak a little more at first, also reluctantly, and so began to take notice of the kindliness with which she was treated every day and became more receptive to it. At first, she still was governed by a feeling of revolt and doubt over the fact that she, a person of normal intellect who had never accepted anything without proof and never had been superstitious, could have become sick and unable to control herself and to spare herself and others these sufferings. She would often ask herself whether it could really all be imagination; was it not some malevolence torturing her out of hatred? The condition of the other patients and the kindness with which she was treated had, however, always proved the contrary. She was discharged after two years' residence in the institution.

Bartels[1] reports a case even more plainly of the nature of "secondary" paranoia. A maiden lady of thirty-five, in the beginning of 1889, developed the idea that her brother-in-law had really loved her first; but her cold attitude had led him to marry her sister, and in this way she had made them both unhappy, and even the whole family. She worried, lost sleep and appetite. In May she was admitted by Erlenmeyer, and discharged in October unimproved. She soon began to complain of having been given opium, of having been raped and become pregnant. Admitted to another institution she began to suspect informers from the first hospital; she became diffident, full of ideas of self-reference, and was kept awake with fears of sexual assaults. Her home-town and all Germany began to be involved. November, 1892, she was transferred without improvement; she began to speak of the attacks in the past tense, was discharged February, 1893, and has remained well.

Most of these cases have in common a decidedly marked initial phase of general disturbance in the nature of a diffuse and general reaction, sleeplessness, depression, and self-accusation, and certain features that give a foundation more or less recalling a manic-depressive type. They are interesting from the point of view of prognosis and through some of the methods by which the patient recovered safe ground in reality. One cannot help feeling that among *patients who might be made to see the errors of a large group of other paranoic cases*, there might be some who might have their spirit of criticism and doubt aroused to such an extent that they might do the unusual thing: begin to examine the foundation of their own convictions. But before any such expectation could be generalized and held up to the public, there should be ample evidence of its having worked in "pure cases," or then we should furnish evidence that it is best not to assume that we always know which are the "pure cases."

Quite a few of the cases of "recovered paranoia" approach more or less the type of so-called acute paranoia, in which something resembling a paranoic attitude and system develops and disappears in a time and situation more like a phase of the manic-depressive attack, or a more or less superficial blundering precipitated by a perplexing and provoking situation. Richard Dewey's[2] case is of this type, plainly an ill-systematized state of uneasy shifting and floundering in a self-indulgent journalist of forty, of social connection and propensities above his means, sunstruck in the tropics twelve years before, unsettled by the publicity of his failure to pay for foolish bills, and by the attraction of a young relative, the interest shown in her by a wealthy friend of the family, some political implications of this man, anticipations of trouble caused by the loss of a letter, fear of detectives, etc., and at the sanitarium a shifting to hypochondriasis, and shortly a solution of the trouble in a sincere

[1] Allg. z. f. Psychiatrie, vol. l, pp. 1097–1099.

[2] Apparent Recovery in a Case of Paranoia, American Journal of Insanity, vol. lx, pp. 443–449.

interest in matters religious and ethical. The evolution of the disorder took about one year before the admission to the sanitarium, and about four months in the sanitarium. The patient remained somewhat hypochondriacal and failed to engage in any regular occupation, but remained free of delusions the twenty months between his discharge and the publication of the paper.

Interesting groups of cases similar to those of Hoch, but much more benign, are those published by Gierlich and Friedmann.[1] Their accessibility to the English reader makes unnecessary a full recapitulation. Gierlich's first case was a government official, slighted in the promotions and painfully conscious of having reached his limit, and finally overcome by an impression that by looking at the wife of his more fortunate colleague he had compromised her and his own wife, and a plot had formed to oust him. The delusional condition remained at its height nine days; the body weight which had dropped fifteen pounds in the last few months began to rise and in a few weeks he was well. About six months later another attack of three or four days with the same delusions followed a strain, and two years later another spell of three weeks. Cancer ended his life a year later. He was well in the intervals.

The second case, that of a wealthy saw-mill proprietor who married a poor girl, is based on the gossipy comments of neighbors on doubts that his wife might not love him and might have married him for his money. It set in after a specially trying business period, with florid accusations against this wife, that she was in league with men, tired of him, etc. This episode lasted about three weeks and recurred several times, but could be intercepted by a timely change when strain showed itself.

The third case is that of a spinster who had sacrificed her best years to the care of her invalid father, and after the age of forty-three, had times when she felt persecuted by various ladies.

In Gierlich's opinion the foundation of delusion formation consisted in disturbances of the mental condition by protracted emotions of expectancy, suspense, anxiety, anger, envy, etc., in combination with an existing weakness of judgment towards these highly accentuated, ideas. Friedmann's cases are similar. I have personally observed a similar episode in a highly talented investigator who felt himself watched, copied and the victim of a plot, but recovered rapidly and without relapse. In these cases the crucial test of therapeutic efficiency would no doubt lie in the *prevention of relapses*, concerning which, however, the reports have but little to say. Cases of this type would undoubtedly repay a thorough therapeutic analysis such as Bjerre undertook, or one searching even more radically the underlying tender spots of the constitutional make-up. The principle is absolutely identical with all analysis and reconstruction. One might be too easily tempted in these cases to depend merely on the hygiene of general health, which is, to

[1] Nervous and Mental Disease Monograph Series, No. 2; Studies in Paranoia.

be sure, of the greatest possible importance, but which could not possibly meet the main issue since no regime can obviate all ill-health. A reasonable preparedness for ups and downs is the only chance of tolerable security. The same holds to my mind with regard to the so-called periodic paranoias of a manic-depressive type. It is but fair to the patient to assume that *if* the delusional tendencies can be reduced to manageable undercurrents, the manic-depressive foundation loses a strong ally.

There is a small group of cases of paranoia recorded as having been strongly *influenced by some acute illness.* Metz mentions a recovery following influenza; Bayerthal one following extirpation of a brain tumor. It is nevertheless remarkable that not more cases are mentioned considering the great readiness to extol the marvels of physical therapy in mental disease. After all, experience seems to show in this type of disorder that there can be at work in certain personalities conflicts of fundamental nature usually favored by hereditary predisposition, or by discrepancies of endowment and ambition, or by deteriorative processes of the brain, and sealed by a tendency of the personality to assert itself in the form of unshakable convictions. Our only hope to-day lies in the discovery and correction of all the *corrigible* elements of the discrepancies between endowment and ambition, organic-somatic or mental, or environmental, and such a readjustment of the foundations of the convictions as a critical and analytically trained extension of common-sense psychology can hope to reach to-day.

Treatment of Symptomatic Paranoid States.—Wherever delusions, whether systematized or not, appear on the ground of a more fundamental reaction type such as that of the elations and depressions of a non-topical character, experience shows that it is not argumentation that is most needed, or any direct attack of the delusions, but a relief of the underlying feelings which are frequently of a more or less somatic character. Especially in depressions, argument is positively irritating to most patients. What is wanted is to reach a neutral state from which the patient does not have to shrink, and in which, on the contrary, it is possible to get an unloading of the strained feelings. No definite rules can be given. In the main we attain most by a cautious substitution of neutral common interests devoid of any pressure and urging and nagging. If it is easiest to obtain that by rest and repose, it is best to accept that; in interesting the patient in some occupation, or in helping others; especially in cheering and interesting other patients one often finds that they unconsciously imbibe what they try to make others assimilate. Patience and a liberal allowance of time and continued attention to whatever can be done to facilitate a normal activity of the organs most involved in the fundamental depression, will in the end give the best results. On this account it is possible from time to time to get the patient into a mood of asking questions about the topics of the delusions. The physicians and the nurses do well to show and occasionally express what their own sane standpoint is, but as a rule to leave it to implication; and they must

stand on the ground that they and the patient must agree to disagree, and they must show by their actions that this is possible.

Prophylaxis.—One great issue in any relatively incurable disease naturally is prevention, and there are some points which need to be insisted upon in addition to what is said generally concerning the prevention of mental abnormality or mental disease. Paranoia and paranoic states, according to our conception, represent an excessive and poorly adapted morbid work of adjustment. They are an effort to get harmony at least in the personality and to force the result, if need be, on the whole rest of the world rather than make any compromises which might become unsettling. The paranoics are in a condition in which acceptance of facts, with a sane amount of doubt and a philosophy of relativity of knowledge, are supplanted by individual dogmatism. In normal life we all work with a certain amount of this dogmatism. The religious convictions of a large number of people crave organization and dread doubt. The same thing shows in a pathological manner in paranoic reassertions of the personality. In a number of cases in which recovery has taken place, the return of ability to entertain reasonable doubts was an interesting feature which even became conscious to the patient himself. Inasmuch then as we know that certain personalities are more prone to develop paranoid states it appears perfectly reasonable that one should attempt to counteract the development as far as possible (1) by cultivating habits of concreteness and inquiry; (2) by teaching to consider mental activity as a tentative forerunner of action, like action itself in need of inquiry and trial before one should feel absolutely sure; (3) and as far as possible one might well cultivate the philosophy of relativity and the ability to get firmness of action and decision with full realization of the relativity of our knowledge and the tentative character of most of our efforts.

The psychopathic individual has to find his way between the tendency to doubt and the tendency to overassert. An early realization of what counts in concrete life and the training of frankness about failures along this line will be apt to furnish opportunities of helping otherwise endangered constitutions.

No general principle of a "hygiene of reason" (if we can speak of such a thing) should receive as much general weight as this: that few actions and decisions of man are ever required and made in which it would not pay to take the *consensus of a sufficient group of serious-minded and well-informed people* as a guide, rather than that of one's own possibly affect-sick or affect-loaded judgment. One need not dread a kind of obligatory commission-form of conduct and obliteration of individuality. As a matter of fact, we usually and inevitably act as members of a herd or like it, but uncritically and without much discrimination; and the number of spontaneous and independent and truly original actions in a lifetime is not very great in the majority of people. If more people would feel ready to be resigned to this fact and draw the best inferences from it, less absurdity would mark the life of most supposedly normal persons, and insanity would find less sham

encouragement in the belief that the individual must be self-dependent at any price. We are ready to avail ourselves of *excuses* that "others" act similarly under similar circumstances; but we cultivate too little the sense of *obligation* of paying the same respect in other matters where we might well watch groups with whom we want to form something like a unit of standard. It may be that the ethics of groups looks too much like the professed tenets or authoritative teaching and pious wishes which everybody learns to take with a grain of salt, since it rarely is the safe generalization based on something like natural history records of actual achievement. Between the good intention of the doctrine and the execution uncertainties and doubts are apt to come in concerning what our model group persons would not only advise but actually *do* under given circumstances; hence the suspicion against *any* assumed "consensus." Excessively exalted teaching and dissimulation of the actual performance are probably inevitable transition evils of ethics between the stage of coercion and religious suggestion and the stage of general rationalization. What I refer to as a desirable court of appeal or "consensus" is not a fixed code of opinion, but the acknowledgment that there are things and situations in life which we do well to intrust to the collective opinion of a group of serious-minded well-informed persons, who are not giving us results of speculation, but experience. To use this principle one must cultivate friendships and relationships which make it easy to avail one's self of the opportunities when the need arises, complicated by a mood which would possibly militate against such a recourse. At such a juncture one feels the need of the possiblity of appeal to a physician and to a legal adviser and to some friend whose judgment appears safe to all parties concerned. They might constitute an unprejudiced tribunal before which the facts can be put in all fairness and with all tact, and the alienist, instead of being arbiter merely in questions of commitment to an institution, must in the mind of the public conquer a position which makes him accepted as one who knows the possible sources of deviations of judgment and differences of opinion depending on possible disorders of the mental mechanism. It is well to keep before the healthy mind a knowledge of the general liability to error and of the shortcomings of individual judgment without causing a morbid tendency to dependence.

CHAPTER XV

THE PRISON PSYCHOSES

By BERNARD GLUECK, M.D.

Introductory.—Those who still believe in an exclusively materialistic theory of mental disorder must find it extremely difficult to maintain their doctrine in the face of the many incontrovertible facts brought to light through modern research in the field of psychopathology.

The modern trend in psychiatry is distinctly in the opposite direction. We no longer today insist upon material changes in cells and tissues for every psychotic phenomenon, but rather endeavor to investigate mental life, be it normal or abnormal, from a biologic point of view. We are being constantly confronted with the undeniable fact that whatever may be the physical substratum of mental disorder, it does not aid us in understanding the particular expression which a given psychosis chooses to assume. Why it is that one paretic greets us with the exalted mien of his grandiose delirium, while another spreads about him the gloom of a depressive delirium—the changes in the pyramidal cells do not explain. There must be then factors other than material ones which determine this.

Mental life, after all, expresses itself in a series of reactions destined to result in a proper adaptation to environmental conditions, and the causes which determine a given reaction may be psychic as well as physical in nature. Indeed, in the realm of psychopathology we see indubitable evidence of the predominance of psychic causes of mental disorder over physical ones, and the subject under discussion here further emphasizes this.

The problem of the prison psychoses, although extensively discussed in psychiatric literature in the last half century is far from being solved, and for this and many other reasons deserves further attention. The psychotic manifestations of prison life are of sufficient frequency to deserve some definite place in our nosological tables; they develop in a milieu artificially created by society, and if this milieu is responsible for the production of mental disorder, it is of the utmost importance, both from a preventive and curative standpoint, to investigate the cause operative here, and lastly, these psychoses concern individuals who form one of the most important problems society has to deal with, and any light which the study of psychotic conditions in these individuals may throw upon the general problem of crime and the criminal, should be very much welcomed. I fully believe that in time the study of the psychotic phenomena developing

in criminals will give us a correct insight into the nature of the criminal personality and thus aid in the solution of that problem which baffles criminologists today.

We know that while pure experimental psychology and psychopathology have aided us in understanding the human mind both in health and disease, we owe the bulk of our knowledge in this field to the investigation of Nature's phenomena and experiments. The human mind, that most complex and intricate organism, lends itself but very feebly to analysis when all its component parts work in unison, and it is only when through disease it has become, so to speak, disintegrated into its various units, that a more ready access to it becomes possible. This is being fully appreciated both by psychologists and psychopathologists. Mental medicine, however, if it is viewed from the present day broad conception of the term, must not confine itself exclusively to psychotic manifestations in the strictest sense of the word, but should embrace within its realm that great mass of unfortunates who populate our prisons, poor-houses, and reformatories. It is now being universally recognized that the pauper, the prostitute, and the criminal classes are primarily products of mental defect and degeneracy, and as such must come within the purview of mental medicine. This being the case, the same truisms which apply to the insane in general must likewise apply to the above-mentioned types.

Conception of the Term "Criminal Man."—We are here especially concerned with criminals who, because of a mental breakdown, have come under the observation of a psychiatrist, and if we agree with many eminent criminologists that the present juvenile state of this science and the ineffective methods of dealing with crime are due to a lack of a proper scientific understanding of that anomalous species which is grouped under the term "criminal man," why not endeavor to solve this problem by approaching it from a psychiatric point of view. If the study of psychopathology has given us such valuable data concerning the normal mind, why not expect that a similar study applied to the insane criminal will bring to light some important facts concerning crime and the criminal in general. It is for this reason that that large group of mental disorders developing in criminals during imprisonment which has been included under the term "prison psychoses" is of special importance to the psychiatrist.

Inasmuch as this is primarily a contribution to a work on treatment, I shall have to digress from the conventional way and omit the discussion of the developmental history and the various views held on the subject of the prison psychoses in times past. The older extensive literature, although very interesting from a historical standpoint, offers very little that is of scientific value, and it is only within recent years that a more rational approach to this problem has been attempted. It is easily conceivable that this branch of mental medicine must have shared the fortunes of psychiatry in general in its various phases of evolution, so that in the history of the prison psychoses are reflected the various views which in their day have dominated psychiatry.

At present it is the school of degeneracy of Magnan and Moebius which is especially concerned with this problem.

Briefly stated, the exponents of this subject belong in a general way to either of the following two schools. The one maintains that the mental disorders occurring in prison differ in no way from those met with in freedom, and that imprisonment at most but lends to them a peculiar common coloring which in itself, however, is not of essential importance. The other school takes a directly opposite view. The followers of the latter maintain that the mental disorders which they are wont to term "prison psychoses" are products of predisposition plus external factors. They differ from the true endogenous psychoses in that they are purely psychogenetic in character, and that their highly colored and extremely variable symptomatology is nothing more than a reactive manifestation of a particularly predisposed psyche to definite environmental conditions. According to them we are not dealing here with mental disorders whose origin, course, and termination are independent of the crime and imprisonment, as is the case in the ordinary well-known forms of functional and organic disorders developing in prison, but with psychotic manifestations which bear the most intimate relation to some definite situation, and which are characteristically colored and shaped by the prison milieu.

Principal Groups of Insane Criminals.—As a matter of fact, the population of institutions for insane criminals divides itself into two distinct and unmistakable groups. On the one hand we meet with the well-known functional and organic psychotic entities such as occur in individuals in freedom; we see patients who in the course of their careers as insane people have come in conflict with the law either accidentally or because of their insane ideas. In them the psychosis develops and takes its definitely determined course independently of the milieu in which the individual happens to be placed. In the majority of instances they suffer from the various forms of dementia præcox and progress toward demential end-results in the same proportion as the general run of dementia præcox cases do, whether or no they have come in conflict with the law. Occasionally we also see a case of organic brain disease or manic-depressive insanity, and in more frequent instances a case of epilepsy.

The other and, according to many authorities, by far the most predominant group of mental disorders met with in imprisonment belongs to the so-called "prison psychoses," and bears definite unmistakable ear-marks which differentiate it from the former group. These are, as we have stated, products of a particularly degenerative soil plus definite environmental conditions, and are of the utmost importance both from a purely clinical and an administrative point of view.

Etiology.—The term "reactive manifestation," as applied here, is a happy one, and inasmuch as the accidental criminal differs from the habitual criminal as day differs from night, we will expect a different sort of reaction to a more or less similar situation in the two instances. To illustrate:

An apparently healthy and in most instances a law-abiding and non-corrupt individual, as a result of a series of overwhelming and uncontrollable circumstances, commits murder in a fit of passion. Upon being arrested and upon the sudden realization of the enormity of his deed the entire constitution experiences a tremendous shock and reacts to it accordingly. He falls into a stupor, into utter oblivion of the world about him, becomes in turn excited and confused, his senses begin to functionate in a fallacious manner, and he thus succeeds in shutting out from consciousness, for the time being at least, the entire unbearable situation. Upon emerging from his stupor he has a more or less complete amnesia for the deed and its attending circumstances, and finding himself confronted with accusations, cross-examinations, and lastly conviction, he at once sets about, so to speak, to square himself with the situation. What does he do? He develops a quite limited well-organized delusional system in which he finds himself absolutely innocent, his accusers are the guilty ones, and the entire situation is nothing more nor less than a well-planned plot to destroy him. His supposed victim has not been murdered at all, but is living and secretly active in plotting and scheming against him, the accused.

In this artificially created world he lives with comparative ease, and has thus succeeded in reaching a proper adjustment to the situation.

The most interesting part of it all is that this so well-organized and apparently fixed delusional system may disappear at once and the various false ideas may become entirely corrected so soon as the provocative agent which is at the bottom of it all is removed. This is a fair example of what has been termed an acute prison psychosis, and occurs with considerable frequency among prisoners awaiting trial. Naturally, these psychoses being, as they are, psychologically motived, are extremely variable in their manifestations, but at the root they are all alike and impress the observer as something entirely different from the pure endogenous mental disorders. They are all psychically evoked reactive manifestations of a particularly predisposed constitution to definite deleterious environmental conditions.

We owe our knowledge of these disorders to the contributions of Reich, Moeli, Kutner, Ganser, Rish, and others, authors who, although describing a more or less identical symptom-complex, have given to it different names, such as hysterical stupor, Ganser symptom-complex, katatonia of degenerates, etc. The distinguishing features of this disorder are its psychic origin, that is, its development in consequence of some strongly affective experience, and its high grade of impressionability to things in the environment which may at any time suddenly cause a complete transition from deep stupor to normal manner and behavior.

Symptoms.—The symptomatology consists of an acute delirioid, hallucinatory episode, usually followed by a more or less complete amnesia which may go back far enough to include the experience which provoked the disorder. Such delusional formation as takes

place after the disappearance of the fulminant symptoms may well be considered as part of the repair process, a mechanism which in most instances reflects the individual's endeavor to adjust himself to an unpleasant, unbearable situation, and must not be looked upon necessarily as an indication of the progressiveness of the disorder.

As we have stated before, complete correction of all delusional ideas may suddenly take place upon the removal of the causative factor at the bottom of the entire situation.

Treatment.—As to the treatment of this acute prison psychotic complex, theoretically, we should have no difficulty in deciding this question. We are dealing with the sequelæ of some definite situation, and the removal of that situation may be, and actually is, in most instances, sufficient to bring about recovery. When we come, however, to deal with concrete instances in daily practice, the problem does not lend itself so easily to solution.

Development of Psychosis Before Trial.—What of the man who upon being arrested following the commission of murder, develops a psychosis while awaiting trial, or who having been found guilty of murder develops a psychosis while awaiting execution?

The Question of Malingering.—The first question which the psychiatrist is called upon to decide in many instances is that of malingering. To the lay mind and to the minds of many of our eminent—but psychiatrically uninformed—jurists the question of malingering suggests itself at once. To them it is perfectly evident that this development of a mental disorder, in the wake of a criminal act, is nothing but a timely preparation for the "insanity dodge." The clinical pictures presented by the acute prison psychosis are especially apt to awaken suspicions of malingering in the minds of the untrained. We see individuals who apparently never before showed any evidences of mental disorder, and who immediately following the commission of a criminal act manifest pictures of grave alienation. Many of them don't know how much twice two is, are absolutely ignorant of the most elementary subjects, remember nothing of the deed, and most important of all fashion their deliria in such a way as to entirely negate the deed, or at any rate justify it.

Genuineness of Psychoses.—But why cannot all these manifestations be genuine? Many of us no doubt recall the effect which examinations have upon certain students? The emotional accompaniment of the examination, especially the emotion of fright, causes many a student to forget facts which he knew as well as his own name, and which he is able readily and fully to recollect as soon as the examination is over. Are we to assume that these students are malingering? Decidedly not: Why then should we question at all the genuineness of a mental disorder developing in an individual who faces the gallows or a life-long imprisonment? As a matter of fact cases of pure malingering are among the rarest things which the psychiatrist observes. Wilmanns in his study of 277 cases of insanity in prisoners, found but two cases of simulation, and in a later review of the diagnoses

of the same series of cases, the two cases of malingering do not appear at all. Bonhoeffer in a study of 221 cases of insane criminals found 0.5 per cent. of malingerers. This is the experience of everyone who comes in contact with these cases, and there are others who go so far as to maintain that every malingerer of mental symptoms is mentally defective.

Psychotic Reaction as Index of Abnormality.—But let us assume that we have succeeded in convincing those concerned of the genuineness of the disease at hand; what line of treatment should be recommended? In the first place, we must remember that the mental disorder, if it belongs to the group which we are discussing here, is the result of a criminal act, and followed in its wake, and therefore the plea of insanity as an excuse for the deed must manifestly be excluded. But may not this type of reaction furnish us an index to the original personality of the culprit? In other words, should we consider an individual absolutely normal, if, in reaction to some stressful situation he breaks down mentally and develops a psychosis? The majority of authorities maintain that these individuals are decidedly abnormal, and that it is only a poorly knit organism which permits of that sort of reaction. Birnbaum, for instance, insists that the possibility of a psychic incitation of a mental disorder is the criterion of a degenerative soil. This is undoubtedly too extreme a view, but the more one observes these cases, the more one is inclined to hesitate in calling these individuals normal in the accepted sense of the term. Let us assume for the moment that these psychotic reactions are indices of an abnormal personality. Is this defect of sufficient import to render the individual irresponsible in the eyes of the law? This question, I fear, cannot be answered very readily. Looking at it from a purely juridical standpoint, we must say No; because an individual is so loosely organized as to break down mentally under a given stress, it does not at all imply that a knowledge of the difference between right and wrong is excluded. The jurist is willing to concede to the proposition of a poorly organized nervous system, a degenerative make-up, a psychopathic constitution, and what not, but if these defects are such as to manifest themselves in crime, society must be given the inalienable right to protect itself from such defectives. The result is that either no extenuating circumstances are considered at all, and the individual is dealt with in the ordinary way, or he is adjudged insane and committed to a hospital for the criminal insane, whether or no insanity exists at the time of the trial. Thus we have on the one hand a prison population which more properly belongs under the regime of a hospital, while on the other hand, we insist on keeping individuals locked up in hospitals for the insane, whether or no they show actual psychotic symptoms. If one of the latter class endeavors to gain his release by habeas corpus, a tremendous howl is immediately raised by the public about the insanity dodge, the worthlessness of expert testimony and the unpardonable offence of letting loose upon society a dangerous criminal. If we stop to consider for a moment, we must admit that

in the great majority of instances, we are not dealing here with dangerous criminals. The man who as a result of a series of overwhelming circumstances over which he had little or no control, kills another in a fit of passion, is not necessarily a dangerous criminal. In the majority of cases it is fair to assume that such an individual will never again in his life have to cope with a similar set of circumstances. The great majority of these people have led, up to that single crime of their life, an honest, peaceful existence, and the instances of an accidental criminal turning recidivist are extremely rare.

Effect of Repeated Sentences.—Society looks on complacently at the repeated sentencing of the habitual criminal and watches without alarm the never failing phenomenon of how each successive imprisonment only serves to deprave him more profoundly; it never considers the danger of letting this class of criminal loose to pray upon it, just so he has served his just and legally prescribed sentence. But let the victim of the "insanity dodge" prejudice endeavor to gain his freedom, and society is at once up in arms.

Thus the matter stands, and until the public learns to know its criminals as they actually are, this problem will remain unsolved. The prognosis of the acute prison psychotic complex is good in the majority of instances. The removal to a hospital regime usually serves to put a stop to the process and it is important for the expert witness to bear this in mind for obvious reasons.

Development of Psychosis after Conviction.—We have thus far discussed the psychosis developing in prisoners awaiting trial, and we shall now turn to that group of cases which are sent to us from penal institutions which serve for the confinement of the convicted criminal.

At the outset we shall endeavor to draw a distinction between the class of individuals which we have just discussed, and that which we are about to consider now. We have seen that the former is made up of individuals who in most instances have come in conflict with the law for the first time, and that the mental disorder which they develop stands in the closest relation with some one definite experience in their life. The patients who come to us from prisons and penitentiaries on account of some mental disorder which developed while they were undergoing sentence are in most instances habitual criminals with a marked criminal career back of them. They differ so essentially from the preceding group, that what has been said about the former can hardly apply here.

Types of Degenerative Psychoses.—The first really worthy contribution to this subject was made by Siefert, the physician in charge of the psychiatric department of the penitentiary at Halle. He published, in 1907, the results of a study of eighty-three prisoners who became insane while serving sentence. He divided his patients into two sharply differentiated groups, the true psychoses, *i. e.*, the well-known forms of functional and organic mental disorders and the degenerative psychoses, *i. e.*, psychotic episodes developing upon a soil of degeneracy and which according to him form the typical prison psychoses.

Before we go any farther it must be mentioned that Siefert did not take into consideration the mental disorders developing in prisoners awaiting trial.

"The true psychoses develop out of endogenous causes, attack and manifest themselves in the prisoner in the same way as in any law-abiding individual in freedom. They are not essentially influenced by changes of environment and there exists no intimate relation between the coloring of the symptomatology and the influence of imprisonment. The degenerative psychoses, on the other hand, develop upon the well characterized degenerative soil of the habitual criminal, and are products of predisposition plus environmental influence. They stand in the most intimate relation to the deleteriousness of prison life, and are therefore influenced to the greatest extent by changes of environment."

On studying critically Siefert's work one gains the conviction that the author not only undertakes to solve certain clinical questions, but endeavors to investigate the problem of the relation between crime and mental disorder. Although he paid the strictest attention to the individual symptoms and described in an excellent manner the manifold and varying symptomatology of these psychoses, he did not succeed in isolating a symptom-complex which might be considered as typical of the degenerative psychoses, and thus deserve the independence of a distinct clinical entity. Above all he occupied himself with the investigation and delineation of the various anomalous individualities, the degenerative constitutions upon which these psychotic manifestations engraft themselves. Thus he divided his prison psychoses into groups like the "simple degenerative," "hysterical degenerative," "phantastic degenerative," etc. Siefert undoubtedly overshot the mark in his clear-cut differentiation between the various types, but he unquestionably contributed the most important work to this subject.

Let us now endeavor to illustrate what he means by this degenerative soil giving rise to these psychoses. As we have stated, the great majority of them are full-fledged habitual criminals and can be easily recognized by their "degenerative habitus." They are that indolent, obstinate, querulent, unapproachable, and irritable class of prisoners who form the bane of prison officials. Constantly in trouble of some sort, they are subject to frequent disciplinary measures which, however, serve not in the least to improve their conduct. Their extremely fluctuating mood and emotional instability frequently calls forth a quite unfounded wild rebellion against the prison regime. They are constantly after the physician with numerous hypochondriacal complaints, such as a nervous heart, digestive disturbances, insomnia, etc. In short, they impress one as something abnormal, something entirely different from the ordinary prisoner. On this basis, now and then more marked, definite psychotic manifestations engraft themselves. Here and there one of them starts to speak of nightly visions, complains about a feeling of anxiety, speaks of suspicious noises and

voices in the vicinity, and finally makes a superficial, ineffectual attempt at suicide. Others become suddenly more antagonistic, vehemently assert their innocence, speak of being the victims of false accusations, etc. Still others suddenly develop a wild, maniacal state, destroy everything within reach, become markedly hallucinated, elaborate various persecutory ideas, and finally have to be transferred to an insane asylum. Here they soon quiet down, the active symptoms subside without leaving any trace behind them, insight may or may not be complete. The characterological anomaly which is at the bottom of the disorder, however, remains, and any necessity for the application of more stringent administrative measures may serve to set the entire process aflame again.

Another group of psychopaths who are prone to develop prison psychoses are those primitive, superficially endowed individuals with a high degree of autosuggestibility, a marked tendency to phantastic lying, and instability of mood, individuals who have always led a sort of humdrum existence without aim or goal of any kind in view. They drift very early into a life of crime and vagabondage, become addicted to all the vices which cross their path, are markedly egotistical, have no conception of social life, frequently desert their wives and families, and a great many of them finally end their days in jails or poorhouses.

Upon being imprisoned they are unable to adjust themselves to the strict regime, find great difficulty in acquainting themselves with the prison regulations and in consequence have to be frequently disciplined. As a result they begin to misinterpret things in the environment and see in these disciplinary measures nothing but persecution on the part of the prison officials. They become suspicious, seclusive, introspective, spend sleepless nights, until suddenly in the stillness of night they perceive isolated phonemes. This strengthens their suspicions. They refuse food, become apprehensive, the hallucinations reach a more definite character, until finally they manifest a well-marked persecutory delirium, or may fall into a semidelirious stuporous state, show numerous katatonic symptoms, become destructive and untidy, and in general present a picture very similar to true katatonia.

Removal to the hospital ward frequently serves to at once put a stop to the process, and often before reaching the hospital for the insane they show no traces of the acute mental disorder.

The foregoing are types of degenerative psychoses met with in imprisonment, and there can be no question that the prison milieu is the etiologic factor here.

To speak here of a progressive disorder to which imprisonment only gives a characteristic coloring is entirely erroneous. A psychosis which is definitely brought on by a certain environment and which is corrected as soon as the environment is changed, must be looked upon as the product of that environment. That the degenerative soil which permits of the development of these disorders cannot be looked

upon as a basic disorder, something like dementia præcox, is likewise unquestionable. These individuals have always shown the same traits of character; it is these very same anomalies which brought them in their childhood days in conflict with the school authorities, which later made them inmates of reformatories, and which finally was at the bottom of their habitual criminality. Finally, the total absence of progression to more or less definite end-results excludes the possibility of an organically determined progressive disorder.

A psychosis which develops in imprisonment and progresses irrespective of the change of milieu is not a prison psychosis in the sense that this term is here used.

Now as to the importance of the degenerative prison psychoses. This becomes at once apparent, if we accept the contention of many authorities that the degenerative soil which makes the development of these psychoses possible, is likewise responsible for the criminality of these individuals; in other words, if we agree that crime and psychosis are here branches of the same tree. Manifestly any discussion of the treatment of these psychoses must of necessity touch upon the vastly broader problem of the treatment of the habitual criminal, the recidivist, and therefore a slight digression from the subject at hand will be unavoidable.

Removal from Prison Environments.—If we admit that it is the prison environment which serves to bring out the prison psychosis, it is perfectly evident that the first therapeutic indication is the removal of the prisoner from that environment as soon as the disorder is recognized. This problem is at present dealt with in several ways. There are certain penal institutions, especially in Europe, which have within their walls a psychiatric department for the reception of these cases. Others send their insane convicts to the criminal department of some hospital for the insane. In this country there are States in which still a third system is in vogue, namely, the confinement of these cases to special hospitals for insane criminals. Now the points to be kept in mind in the treatment of the insane criminal are briefly stated these. First, they should of course come under the supervision of a trained psychiatrist. Second, the transfer from prison to hospital must take place with as little delay as possible and not be burdened with a lot of red-tape procedures. Third, the hospitals for the housing of these patients must be fully equipped in accordance with the modern ideas of hospital construction, and at the same time afford ample security for the prevention of escapes. Fourth, the interest of the inmates of the general hospital for the insane and the feelings of their friends and relatives must be kept in mind, when we begin to advocate the populating of our hospitals for the insane with criminal characters.

Psychiatric Annexes to Prisons.—The psychiatric annex in connection with the penal institution meets all these requirements better than any arrangement for the care of the insane criminal. An annex of say fifty beds in connection with every State penitentiary would obviate entirely the delay in transferring the patient from prison to hospital,

and *vice versa*. As soon as a prisoner begins to show signs of mental disorder, and a prison physician trained in psychiatry will be able to recognize these early signs, or as soon as there is the least suspicion of a mental disorder, the patient could be transferred without delay to the psychiatric department. Here they should be kept under observation for at least six months. This will be sufficiently long in most instances to enable the physician to determine whether he is dealing with a progressive deteriorating psychosis or with one of these transitory prison psychoses. In the cases of the former, *i. e.*, if it is definitely established that the patient is a dementing præcox or paretic, the fact that he happens likewise to be a criminal is really of little or no importance. A demented individual is never dangerous enough so as to require confinement in an especially secure hospital, even though he is a prisoner, and unless he is criminally insane, *i. e.*, unless he manifests dangerous or criminal tendencies, as a result of his mental disorder, really forms no special administrative problem. He could be kept either in the prison annex until the expiration of his sentence, if there be room for him, or could be transferred to the nearest hospital for the insane and treated the same as any other insane patient.

Treatment of Transitory Prison Psychoses.—It is the second group, however, *i. e.*, those patients suffering from the transitory prison psychoses, which especially justify the establishment of psychiatric annexes in connection with prisons. We have seen how detrimental to prison discipline these individuals are, even when in a condition which might be considered normal to them, and we can easily surmise what it must mean to care for them in prison during one of their mental upsets. It is therefore of the utmost importance both for the prison administration and for the individual, that these patients should be transferred to a properly appointed hospital in as short a time as possible, and this can be done most readily when the hospital and prison are within the same walls and more or less under the same management. On the other hand, we owe it to the prisoner to bring him under proper care as soon as possible. The practice of sending these individuals to criminal departments of general hospitals for the insane has many objections. In the first place, no matter how modern the equipment of such departments, most of them cannot afford the proper kind of treatment to these individuals. The idea that the removal from prison to a criminal department of an insane hospital will have a beneficial effect upon the prisoner because of the more lenient environment into which he is taken is entirely delusional in the case of the degenerated habitual criminal. These individuals, if the public safety is to be kept in mind, can receive but very limited privileges in a hospital for the insane. The modern hospital is not constructed with the idea of caring for dangerous criminals, and in many instances an habitual criminal, who because of his dangerous tendencies and ever readiness to escape, has to be constantly kept under lock and key, would be much better off if he were treated within the enclosure of a prison. There the construction of the place permits of a wider latitude of outdoor exercise.

An annex located within the enclosure of a prison could well afford to allow its patients the freedom of the enclosure while this can manifestly not be done in a general hospital for the insane. Then again there is the unavoidable delay attendant upon the commitment of a prisoner to ansane hospital. As I have already stated elsewhere, it is not a rare occurrence to receive patients into the hospital who have entirely recovered from their mental disorder before leaving the prison. Furthermore, the expense and danger always connected with the transfer of insane criminals from prison to hospital and back again, if the hospital is any distance from the prison, must be kept in mind.

Special Measures of Treatment.—A word to those who, from a false altruistic standpoint, insist that the insane criminal requires no different treatment than the ordinary insane patient does. This is very true in the case of prisoners who develop mental disorders which have no relation to crime or imprisonment. These do not require special measures of treatment. But it is entirely different with the criminal who suffers from a degenerative prison psychosis. Here we are not dealing with individuals who tend to dement, who have little or no conception of whether they are in prison or in a hospital. In short we are not dealing here with paretics or senile dements who, although being at the same time prisoners, remain subject to the same unavoidable lot of the paretic or senile dement. The habitual criminal who suffers from a degenerative psychosis, unless he is in a stupor, is constantly on the alert for a chance to escape. No matter how delusional or hallucinated he may be, he always manages to keep in mind that the thing which he most desires is to be free from the hands of his captors, and anyone who has had to deal with this class will bear me out in this. The shrewdness with which they carry out their escapes is amazing, and some of the more depraved ones do not hesitate to commit serious assaults in order to gain their freedom. Here measures other than those used with the ordinary insane patient are required.

Objections to Special Hospitals for Insane Criminals.—Now as to the special hospitals for insane criminals which certain States have. Of course the same objections, namely, as to the delay in getting the patient under treatment and the danger of transfer, etc., hold true also here; but these hospitals, it seems to me, have the additional disadvantage that they necessitate the segregation of all insane criminals, irrespective of whether they suffer from a recoverable psychosis or from a dementing process. In other words, here we have an admixture of cases who unfortunately fell into the hands of the law because of some mental disorder and who certainly should be confined as any other patient in an ordinary hospital for the insane, and patients in whom the crime and mental disorder are expressions of the same underlying degenerative defect, and who in a great majority of instances suffer from recoverable transitory mental disorders.

To insist upon keeping a paretic all his lifetime in such an institution is highly irrational to say the least. The most rational, and the only scientific way, of dealing with the insane criminal is to bring

about a state when the psychiatric hospital will be made accessible to him just as easily as the surgical and medical ward is, and this can only be accomplished by having psychiatric annexes in connection with prisons. The only serious objection which can be raised against this plan is that in time the annex will be made up exclusively of a very dangerous and troublesome population, but this objection likewise applies to the special hospital for the insane criminal. Certainly it is far safer to have this class of cases within the prison enclosure than to allow their accumulation in a general hospital for the insane.

The Problem of Recidivism.—We have thus far discussed the treatment of prison psychoses in these individuals while undergoing sentence, but what of them after the expiration of their sentences. We are now approaching the problem of recidivism, and much as I would like to enter into an extensive discussion of this problem, I will have to limit myself to a few remarks only owing to lack of space.

Certain it is that society has thus far failed to deal effectually with this problem, and one need not search very deeply for the causes of this. Society has been relying principally upon its punitive methods in dealing with the habitual criminal, and so long as a given offence was punished according to a given statute it felt that it had done its duty. The factor of the personality of the criminal was entirely neglected. In time we have come to realize that our punitive methods not only do not tend to do away with recidivism, but enhance it. It is an undeniable fact that each additional imprisonment only serves to deprave the habitual criminal more deeply, and to release him after the expiration of an arbitrary sentence is to let loose another parasite to pray upon society. Of late years, however, there has been a tendency toward individualization in criminology. "It is the criminal and not the crime that we must deal with" is the modern slogan, and starting from this point of view we have already found out some very interesting facts. We find in looking over the life histories of our habitual criminals that they have shown antisocial and abnormal traits from their earliest youth; that in their early manhood they populated the reformatories and that their recidivism is due to some underlying anomaly which always differentiates them from normal men.

In this chapter we have seen how this underlying anomaly served under certain stressful situations to give rise to mental disorder, and have concluded that crime and psychosis must be in these individuals, branches of the same tree. If this is true the question arises whether the habitual criminal does not rather belong in a hospital than in a prison. It is a little premature to decide this at the present day, but it is unquestionably certain that it is the psychiarist who will in time furnish us the most valuable data concerning the "criminal character." It is he who will eventually bring to light unshakable proof that in the habitual criminal we must see an anomalous human being who stands in the same relation to normal man as disease does to health, and then, and not until then will the problem of recidivism as well as that of the psychoses of criminals be solved.

CHAPTER XVI

PRESENILE, ARTERIOSCLEROTIC AND SENILE DISORDERS OF THE BRAIN AND CORD

By ALBERT MOORE BARRETT, M.D.

In this chapter will be considered the treatment of certain mental and nervous disorders whose occurrence is intimately dependent upon the regressive changes which involve the central nervous system as a part of the process of aging.

The year of life at which the physical and nervous structures begin to undergo involutionary changes is subject to considerable individual variation, and any attempt to fix an age at which one becomes senile must be more or less arbitrary. For clinical convenience it has become customary to recognize a senile period of life, the beginning of which in the majority of instances Naunyn places at about the age of sixty-five, when in most men the ensemble of the evidences of aging have become manifested, and a presenile period which stands between late adult life and the beginning of senility. The influence of age in the production of mental disorders has been well recognized and a group of senile psychoses has long been a part of all clinical classifications of mental disorders. As clinical and pathological experience has developed it has been found that while arteriosclerotic changes in the brain are commonly associated with the process of a senile psychosis, they sometimes are so characteristically independent of the process of aging as to justify the establishment of a special group of arteriosclerotic mental disorders. The position of the presenile mental disorders is less clear. The conception of these clinical forms has been developed in the text-books of Kraepelin, and includes a variety of clinical syndromes which cannot satisfactorily be placed among other circumscribed clinical groups and which occur during the involution period at an age earlier than senility, and in most instances have shown severe structural changes among the nervous elements of the cortex.

PRESENILE MENTAL AND NERVOUS DISORDERS—PRESENILE ANXIETY PSYCHOSES

The disorders which are peculiarly characteristic of this period are certain types of severe depressions, the mental and nervous disorders of arteriosclerosis and Alzheimer's disease.

Eliminating the mental disturbances which develop in association with cerebral arteriosclerosis, by far the greater number of mental disorders of this period are states of mental depression. Many of these are phases of manic-depressive insanity which differ clinically from the attacks of this disease which occur in earlier years in an intermixture of manic and depressive symptoms and a marked prominence of anxiety. Such conditions make up the greater part of the group which Kraepelin, in the earlier edition of his text-books, considered as a special clinical type designated as melancholia. There occasionally occur during this period certain clinical types which cannot well be placed in the manic-depressive group. The more acute phases of these are dominated by anxiety and perplexity and the disease either terminates fatally or leaves the patient in a more or less severe degree of dementia.

Etiology.—The anatomical findings are those of a severe destruction of the nerve cells of the cortex and suggest that the process is one due to certain influences from disturbed metabolism which result from the involution the body tissues are undergoing at this period of life.

Pathological Anatomy.—In a number of instances in which the disease has terminated fatally, the nerve cells of the cortex have shown severe destructive changes. These have been largely of the type Nissl describes as "severe alteration." The nerve cells swell, the nucleus becomes changed and stains deeply. In the further course of the process the cell body breaks up into ring-like particles, the nucleus becomes pale, its outline irregular, and ultimately the entire cell structure disappears. In some diseases occurring in this period, which pursue a delirious course, with neurological evidences of neuritic disturbances, many of the nerve cells of the cortex, particularly in the motor region, show swelling and disappearance of the chromophilic substances from one side of the cell body, and an eccentric displacement of the nucleus. These changes resemble those which may be produced experimentally by injury to the fiber process of a nerve cell. This is the process which Meyer has described as central neuritis and Turner as a change characterizing terminal states of melancholia.

In the bloodvessel walls and lymph spaces there may occur considerable amounts of lipoid substances which come from the disintegration of nervous tissue. The glia cells crowding around the nerve cell are of the type Alzheimer has described as concerned in the elimination of disintegration products.

Symptoms.—Conditions of this type are not common, and show such differences in their symptomatology and termination that they cannot be regarded as constituting a clinical entity. They have been observed at various ages between forty and sixty. The development of the mental disturbance is gradual, excepting in the most severe forms where the onset may sometimes be sudden. The patients complain of an indefinite nervousness and difficulty in sleeping. They become apprehensive and soon give expression to delusional ideas, such as

self-accusations of wrong-doing, or they often misinterpret various happenings in their environment. Rather frequently the delusions relate to some imagined physical disorder. As the disease progresses the effects of intellectual deterioration become noticed in the lack of plausibility of the delusions, and in the advanced phases of the disease the delusions may be senseless and fantastic. At this period one rather frequently notices the delusions of negation, in which the patient denies the existence of realities; in such expressions as: "Everybody is gone. I am gone too. There is no one any more. I cannot die. There is no death."

In some instances the delusions may be of an expansive type. Even in mild cases the comprehension of the patients for what is going on about them may lack clearness, and their attitude may be one of perplexity. In more severe cases the consciousness may be greatly disturbed, and the occurrence of vivid hallucinations may produce a condition resembling an acute delirium.

The memory for their recent experiences is imperfect and their remembrances of the past are often inaccurately colored by their depressed mood. In some instances the patients fabulate imaginary experiences they have been through; usually these are based on illusionary misinterpretation of actual events.

The mood from the first is one of deep depression with intense fears of some indefinite harm. In their attitude and conduct they show much nervous tension and a motor restlessness which may increase to a considerable degree of excitement. This physical agitation with the intense emotional depression constitutes the symptom of anxiety.

In a considerable number of cases the movements may assume a stereotyped character, and this with the resistiveness and a confusion of speech which sometimes occurs has led to the designation of this type as a late katatonia. Kraepelin in the last edition of his text-book regards these cases as essentially different from katatonia and has placed them among the other types of presenile mental disorders.

When the disease does not terminate fatally from some intercurrent process, the end stage is mental deterioration. While usually this is a severe dementia, in some instances it reaches only a moderate degree, and life outside of an institution may be possible.

In addition to the several types of anxiety psychosis Kraepelin has described a presenile paranoid disorder. This differs from the true paranoia in the changeableness of the delusions and from the paranoid forms of dementia præcox in the more advanced age at which it occurs and the less prominence of hallucinations.

Treatment.—These presenile disorders can be treated to far greater advantage in the special hospitals for mental diseases than at home. The possibility of suicide and the rapid physical deterioration, which in large part is the result of not taking sufficient nourishment usually bring about their commitment to a hospital.

While the danger of suicide is more marked in the early stages before the mental deterioration, at no time during the course should this

possibility be forgotten. In the hospital during the period when the anxiety is acute the patients are best cared for in bed.

Nutrition.—The body weight falls rapidly, and one of the chief demands of treatment is to keep up the nutrition. The progress of this is best indicated by taking weekly weighings. Although the patients may not absolutely refuse food it is found that they rarely take sufficient if left to themselves. At the beginning every possible effort should be made to encourage an appetite by moderate exercise, by pleasant surroundings, and especially attractive and highly nutritious foods. If the weight continues to fall, it is advisable to resort to forced feeding. It is better to feed through the tube than with the feeding cup. The tube may be passed into the stomach through the mouth or nasal passages. The chief danger is the possibility of passing the tube into the trachea. Those who are inexperienced will find the former way is perhaps less dangerous, but it is often made difficult by the resistance of the patient and the necessity of using mouth gags. The greater amount of struggling with this method may increase the apprehensiveness of the patient. If the mouth route is used one should use a soft rubber stomach tube such as is ordinarily used for gastric lavage with a funnel end. The tube is moistened or the end greased with vaseline and introduced into the back part of the pharynx and the patient made to swallow, as the tube enters the esophagus it is gently pushed downward and soon enters the stomach.

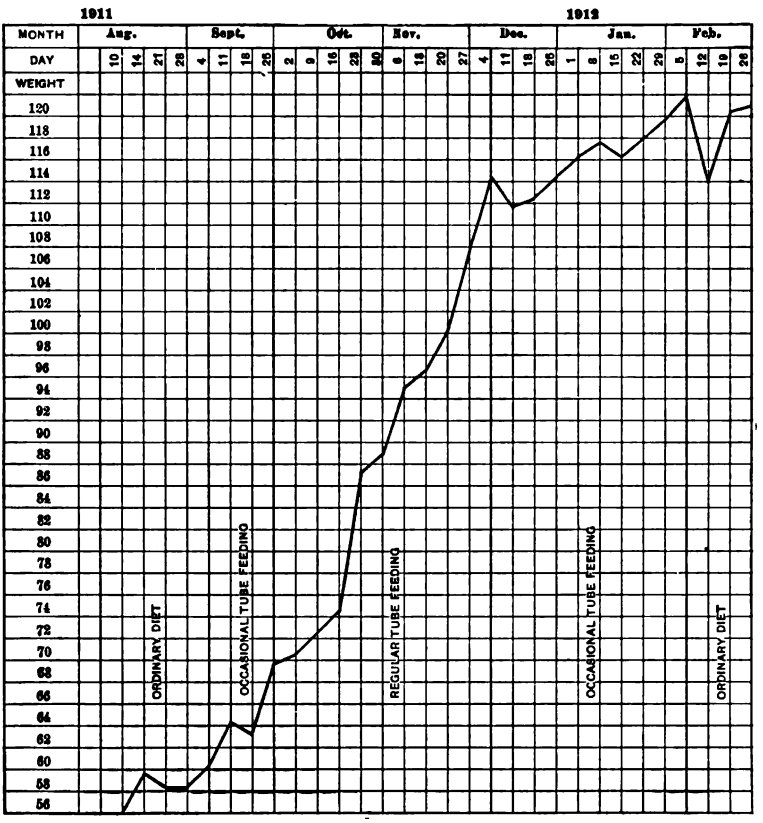
If the tube enters the larynx, the patient will usually cough; all danger may be eliminated if the tube is pinched and the patient allowed to breathe before the fluid is poured in. Nasal tube feeding is best done through a tube as large as will pass easily through the orifice. The tube when well greased is easily pushed into the pharynx and downward into the esophagus. Some care is needed in the withdrawal of the tube so that no food enters the larynx. The feeding should be done at least twice daily and in some instances at morning, noon, and evening. The food should be fluid, warmed to the body temperature and about one liter may be given at a feeding. As foods, one may use milk alone or mixed with eggs, butter, meat, or vegetable extracts. Malted milk or some like preparation of milk may be used to advantage. It is best to make the mixture contain as nearly as possible the elements of a normal diet. By such forced feeding it is usually possible to hold the weight from falling or effect a progressive increase.

In Fig. 48 is shown the result of forced feeding in a patient with moderate anxiety but extreme emaciation. It was possible during a period of five months to bring the weight from 66 to 122 pounds. The weight would at once fall if the feeding were discontinued or the patient allowed to eat by herself.

Sedatives.—The problem of quieting the agitation is always a serious one. Of all sedatives, opium seems to be the most efficient. This can, as suggested by Kraepelin, be given in the form of the tincture, beginning with 10 to 20 drops and gradually increasing until 20 to 50 drops are taken two or three times daily and then gradually reducing.

Morphine is said to have some special advantages over other opium preparations when the anxiety is associated with pains or other sensory disturbances. With either preparation it is necessary to be mindful of individual idiosyncrasies and the dangers of habit formation. If morphine is used it should be given in the smallest possible dose that will be effective.

FIG. 48



Weight chart of results of forced feeding.

Hyoscine and other sedatives seem to be of little value in reducing the agitation. For the insomnia, which is so generally present, the best results seem to be obtained from veronal. This may be given in doses of 0.3 to 0.6 gram (5 to 10 grains) dissolved in hot water or milk. In some cases in which the disorder seems to stand in intimate relation to the climacteric period of women, Kraepelin and some others have used various preparations of ovarian extracts, but with negative results. Suggestion and persuasion seem to be of no avail in influencing the apprehensiveness.

MENTAL DISORDERS OF CEREBRAL ARTERIOSCLEROSIS

Clinically there occur several varieties of arteriosclerotic disorders of the central nervous system which are determined by the localization of the diseased vessels and the severity and progress of the disease.

The dementia which is associated with the coarse vascular lesions such as hemorrhage and softening has long been a familiar clinical disorder and has been variously described as post-paralytic dementia, post-apoplectic dementia, and arteriosclerotic dementia. Arteriosclerotic changes in the cerebral vessels are probably the most important factor in the production of these disorders, and their mental and neurological symptoms have much in common, but they are so clinically distinctive as to exclude their consideration in this place.

The mental and nervous symptoms which result from syphilitic endarteritis, particularly as it affects the smaller cerebral vessels, are so like those of a non-syphilitic arteriosclerosis, that it does not seem possible at the present time to differentiate clinically between them. This difficulty is increased by the lack of any exact information as to what extent syphilis is a factor in the production of the arteriosclerosis in general.

Etiology.—The causes which influence the occurrence of arteriosclerosis of the vessels of the body must also be of importance in the production of arteriosclerosis of the cerebral vessels. Apart from this the brain vessels are peculiarly liable to changes which are directly related to their own structural relations and functions. The cerebral arteries, according to Wada, differ from the vessels of the body in that they have less elasticity, by reason of having fewer elastic fibers and a poorly developed media. In addition the vessels of the brain are often subjected to unusual strains and wear which come from excessive demands in nervous functioning. Usually the cerebral arteriosclerosis is a part of a general arteriosclerosis, but not infrequently there is arteriosclerosis of the vessels of the trunk with no or but slightly developed changes in the cerebral arteries, or in many instances there may be severe arteriosclerotic changes in the brain with little or no disease of the arteries of the trunk.

The arteriosclerotic forms of mental disorders occur in advanced life. Kraepelin found that of 108 cases of arteriosclerotic mental disorders 44.4 per cent. occurred between the sixtieth and seventieth years of life. Rarely the disease is observed as early as the period between thirty to forty. In these early cases Lewandowsky states that the disease seems to be directly due to alcohol or syphilis.

Predisposition.—Individual predisposition plays an important part in the occurrence of arteriosclerotic cerebral disorders. The families of these show an unusual frequency of cardiovascular diseases such as paralysis or sudden deaths from apoplexy or heart failure. Weber suggests that the predisposed may have a thinner vessel wall than others. In the greater number of instances the disease develops as

a primary change which results from aging or external influences. In the process of the aging of the body the cerebral arteries seem to be more affected than other vessels. As important external factors there have been noted alcohol, syphilis, nicotine, chronic lead poisoning, and various infectious diseases. Occasionally the disease seems to stand in close relation to head traumas. The part which psychical influences have in the development of cerebral arteriosclerosis is not easy to determine. This is largely from the difficulty in separating cause and effect. The brain vessels are very responsive in changing under emotional influences, but there seems to be no proof that quiet intellectual work uninfluenced by strong emotional components can bring about arteriosclerosis of the cerebral vessels.

High Blood Pressure.—An intimate relation exists between arteriosclerosis and high blood pressure. The clinical symptoms of each have much in common and high blood pressure must be an important factor in the production of the structural changes in the vessel walls. Erb has shown that it is possible experimentally to produce arteriosclerosis in animals by injection of adrenalin into the blood. It has been suggested by Kraepelin that the overproduction of adrenalin and its accumulation in the blood may be an important factor in the occurrence of arteriosclerosis. It has, however, been shown by Fraenkel that high blood pressure may occur without an increase of adrenalin in the blood, and that in Basedow's disease there may be a marked increase in the adrenalin content of the blood without high blood pressure. It seems probable that the most important cause of high blood pressure is the accumulation of products of disturbed metabolism within the blood which affect the vasomotor apparatus. Müller has called attention to the fact that increased blood pressure and hypertrophy of the heart occur only in the group of kidney diseases which lead to uremia, and that the uremic poison is identical or related to that which causes high blood pressure. It has been observed that in chronic nephritis a rapid rise in blood pressure will occur when a change of diet is made to foods rich in albumin.

Pathology.—Anatomically arteriosclerotic brain disorders must be considered from two aspects, viz., the changes present in the blood-vessels and the reactions which occur in the nervous tissue proper. As it affects the vessels at the base of the brain, in the meninges, and the largest vessels of the brain substance, the process presents the same features as occur in arteriosclerosis of the body arteries. The process begins in the subendothelial parts of the intima, probably with a degeneration of the elastic fibers. The connective tissue of the subendothelial layer of the intima proliferates and extends in between the split fibers of the elastica. In arteriosclerosis of non-syphilitic etiology, excepting in the smallest arterial vessels, which have no true intima, there probably does not occur any proliferation of the endothelial cells.

Wada defines the process as "a reparative process for the support of a vessel in which the elasticity is diminished." This lessening of

elasticity may be the result of physiological aging or of toxic and mechanical influences. The proliferated connective tissue and the degenerated elastica may undergo the necrotic changes of atheromatosis. Often calcareous salts are deposited in the degenerated area. Instead of becoming atheromatous, the wall may be changed into a hyaline substance. In sections from arteriosclerotic brains there often occur peculiar arrangements of the vessels, clusters of rings, vessels aggregated into bundles, looped and twisted tubes. Cerletti has recently shown that these are chiefly due to adjustments of the vessels to the changed relations which come from the atrophies of the nervous tissue and various hypertrophic and degenerative changes in the vessel walls. In some instances new blood channels are formed within the "intravasal" proliferated tissues.

Lipoid substances are commonly present in epithelioid cells lying in lymph spaces of the vessel wall, and in smaller amount in the adventitial cells. Rarely the vessel wall may degenerate into substances which give reactions different from hyaline and which Alzheimer has described as colloid.

As a result of these changes there may occur focal softenings from sudden closing of a larger cortical or medullary artery; when this is gradual there may be no coarse necrosis of the area, but a degeneration of the least resistive elements and proliferative phenomena in the glia of the involved region. Instead of softenings there may occur miliary hemorrhages, especially where the vessels have undergone hyaline degeneration. The walls of the vessels may be weakened by the arteriosclerotic degeneration and miliary aneurysms formed; the rupture of these is the most important cause of spontaneous cerebral hemorrhage.

The changes in the nervous tissue cannot be regarded as specific yet are quite characteristic in their peculiar distribution. The nerve cells in the region of vessel involvement undergo a variety of degenerative changes, leading to complete disappearance of the cells, or to their persistence in much altered forms. The glia elements show focal progressive changes, such as increase in the protoplasm of the cell body and the production of fibers. Where the injury is very severe or recent, regressive changes of the glia cells may predominate. Other cells of mesoblastic origin, such as the epithelioid cell and rod cells are commonly found in and around arteriosclerotic foci.

Focal Occurrence of Arteriosclerotic Process.—The characteristic feature of the arteriosclerotic process is its focal occurrence. The focal lesions may vary in size from small fields visible only under high magnification to patches distinguishable with the unaided eye. The course which the process follows shows differences in progress and localization and on a clinical-pathological basis Alzheimer has described four groups of mental disorders.

I. *Arteriosclerotic Brain Atrophy.*—Clinically this may course in two ways; with minor nervous or neurasthenic symptoms which lack the progression of the second type. Anatomically there is present a

severe sclerosis of the arteries with slight gross changes in the brain. There is absence of marked focal disintegration of the nervous tissue. The nerve cells show little more than pigment atrophy and there are scattered proliferative phenomena among the glia cells of the cortex and increase of glia fibers about the vessels.

The second type is that of a severe progressive arteriosclerotic brain degeneration which in its beginning may resemble the first form, but there rapidly develop severe mental disturbances which lead to a marked degree of dementia, incidentally there are attacks of different nature, such as fainting, apoplectiform shocks or epileptiform convulsions, with more or less well-defined focal symptoms.

II. *Subcortical Encephalitis.*—This is a group described by Binzwanger in which there is an atrophy of the deep lying white substance which is due to arteriosclerosis of the long medullary arteries. Clinically, difficulty in the association processes is the first and most striking symptom; speech is early affected. Often there are varieties of aphasic disturbances, apoplectiform and epileptiform attacks, with periods of excitement and confusion. There sometimes develop suddenly or gradually without mental involvement articulatory speech disturbances or hemiparesis. Anatomically there is an absence of focal softenings. The pia is moderately hazy and the convolutions are narrowed and deeply depressed. The cortex is well preserved but the underlying fiber areas show much atrophy. Often in these cases there are arteriosclerotic foci in the internal capsule, lenticular nucleus, thalamus, and quite regularly among the pyramidal fibers of the pons.

III. *Perivascular Gliosis.*—Perivascular gliosis is a process in which there is an atrophy of the nervous elements, and a proliferation of the glia in the field of distribution of sclerotic vessels.

IV. *Senile Cortical Devastation.*—This is a disorder of senile years in which there is combination of arteriosclerotic changes and senile atrophy of the nervous tissue.

Pure types of these groups of Alzheimer are not common, as the focal lesions, where they are of any considerable size or peculiarly localized, may modify the clinical and anatomical picture.

Symptomatology.—There is no cardinal symptom which in itself indicates the existence of cerebral arteriosclerosis. In general the clinical symptoms are those of a progressive lessening of the mental ability, especially of the memory, with transitory and permanent neurological disturbances referable to focal involvement of the central nervous system. The onset is usually gradual and even in those instances in which the disturbance seems to date from an apoplectiform or epileptiform attack it is possible to detect some evidences of mental impairment for varying periods before the attack. Individuals who are peculiarly intellectual workers are often able to appreciate that the mind works less efficiently than formerly and that a greater effort than usual is needed to do their customary mental work. Mental fatigue occurs much sooner than formerly and even with lessened functional activity. From the first there is an increasing forgetful-

ness, chiefly for every-day experiences, and as the disease progresses and attacks of disturbed consciousness occur, there may be amnesia for considerable periods. In intellectual workers Windscheid mentions the impaired capacity for the creation of new thoughts. The sleep is commonly disturbed; there may be severe insomnia or the patient may show an increased sleepiness. The moods show an unusual variability; laughing and crying occur without adequate cause; and the patients become irritable and suspicious. The feelings become less responsive; this Pick describes as a loss of the fine modulation which is normally present. These mental disturbances affect the personality and the individual becomes changed in character. They show a decreasing interest in their environment. They forget the date and they do not learn the names of physicians or fellow patients. In part this lack of interest may explain the memory disturbance. Usually during the course of the disease there occur sudden lapses of consciousness or episodes of confusion and bewilderment in which they become unable to clearly comprehend their surroundings or understand questions. More severe attacks of disturbed consciousness which may last for days or weeks are occasionally observed. The orientation is quite well preserved in the earlier period of the disorder. They usually know their location and have an approximate idea of the date; such inaccuracies as do occur are mostly referable to forgetfulness or lack of interest. Hallucinations are not uncommon. They may be auditory, visual or both. They are usually rather elementary and rarely give the patient much concern. The thought processes in many instances are dulled, the patients rarely volunteering conversation. Delusions are sometimes absent, and where they do occur, are rarely continuously held, and except in the beginning of the disease rarely influence the conduct. The content of the delusions is usually ideas of suspicion or persecution. In rare instances expansive ideas have been noticed. There is usually a considerable degree of insight maintained throughout the course of the disease. They appreciate their progressing mental inefficiency and are fearful that they may become insane. In some instances this seems to have been the explanation for suicidal attempts.

Early in the course of the disease, when influenced by ideas of reference, or in moments of apprehensiveness, they may become aggressive and assault those who are believed to be annoying them. As the disease progresses there is an increasing lack of initiative on the part of the patient. At times their actions are as if confused, or show apraxic disturbances.

In addition to mental abnormalities there regularly occur symptoms referable to irritative and destructive processes which are more or less focal in their localization. Headaches occur with much constancy and are usually described as feelings of pressure in the occipital or frontal regions. These bear a close relation to high blood pressure and are made worse by actions which cause a cerebral hyperemia, such as bending over or unusual exertion, or they occur as a result

of unsuitable diet. Individuals with cerebral arteriosclerosis are peculiarly sensitive to the influence of alcohol. Dizziness is a common symptom. This may be moderate in degree, producing a certain unsteadiness or uncertainty as the patient walks or stands, or it may be so severe as to cause the patient to fall. It is usually transitory in its occurrence and is particularly noticed when sudden changes of position are made, as arising from the bed or a chair.

Motor Attacks of Apoplectiform or Epileptiform Type.—Most cases of cerebral arteriosclerotic disorders have some time during their course motor attacks of an apoplectiform or epileptiform type. These may occur without any apparent cause or frequently follow some incident which produces an increase of the cerebral blood pressure, such as strong emotional excitement, sudden exertion or head injury. They may be of short duration or continue for days as states of disturbed consciousness or motility. The recovery from these may be complete, but it is more usual for some slight disturbances of motility or sensation to permanently persist.

The epileptiform attacks are often of a Jacksonian type.

Those cases in which convulsions occur with frequency closely resemble the epilepsy of late life, the so-called "epilepsia tarda." The pathological process of this type of epilepsy is a cerebral arteriosclerotic disorder, which anatomically cannot be clearly differentiated from the more severe forms of cerebral arteriosclerotic disorders which do not have convulsions. Disorders of this type are sometimes associated with cardiac disturbances, particularly Stokes-Adams disease.

Sensory Disturbances.—Referable to arteriosclerotic changes in the brain are a variety of sensory disturbances. Some of these, such as cutaneous paresthesia, may be among the earliest symptoms of the disease. They are usually transitory and may be localized in an extremity, in a distribution which suggests sensory disturbances of spinal origin. There may occur transitory disturbances of vision and hearing.

Speech.—The speech is not infrequently involved. This is sometimes of the type of aphasic disturbances, such as paraphasia or perseveration, and is usually transitory. Occasionally the speech shows a disorder of articulation which in many ways resembles the speech defect of general paralysis.

Heart and Kidneys.—Symptoms referable to pathological conditions of the heart and kidneys are frequent accompaniments of cerebral arteriosclerotic disorders. The heart commonly is increased in size and the valves may be diseased. The urine often shows albumin and casts. The blood pressure is commonly increased, the radial pressure not infrequently ranging between 180 to 200 mm.

Cerebrospinal Fluid.—The cerebrospinal fluid shows no constant changes that are diagnostic. In many instances of cerebral arteriosclerosis the albumin content of the fluid is increased. In cases in which syphilis is absent as a factor in the production of the arterio-

sclerosis there seems to be no certain increase of cells. Where hemorrhages or cerebral softenings complicate the cerebral disturbances, there is in many instances marked increase in the cell content of the fluid and among these cells may occasionally be found phagocytic elements with altered blood pigments as inclusions.

Diagnosis.—The diagnosis of arteriosclerotic mental disorders is made on the age at which the disturbance develops, the evidences of vascular disorders in the body, such as heart and kidney diseases, and sclerotic changes in the peripheral and sometimes retinal vessels. Transitory increase in blood pressure is not infrequent in individuals of nervous temperament, following various affective disturbances, but the continued presence of pressures above 150 mm. is suggestive of the occurrence of arteriosclerosis somewhere in the vascular system. The increased pressure may not be due to the arteriosclerosis, but it is an important factor in the production of the sclerotic changes in the vessel walls. Quite characteristic are the neurological disturbances referable to focal irritative and destructive changes in the brain, such as the headaches, the dizziness, and the apoplectiform or epileptiform attacks.

The mental symptoms which are peculiarly distinctive in cerebral arteriosclerosis are the slowness and difficulty of the thought processes, the long preservation of insight, and the uneven character of the deterioration, certain functions being little affected, and others severely impaired.

The two mental disorders which present the greatest difficulties of differentiation are general paralysis and some forms of cerebral syphilis.

When the examination of the blood and cerebrospinal fluid is possible the differentiation is less difficult. The absence of increase in cells and in albumin content, and the lack of complement fixation in the blood or fluid would usually eliminate general paralysis and most cases of cerebral syphilis. Where syphilis has been present as an etiological factor in the production of the arteriosclerosis, the pathological changes in the fluid may offer no positive help.

The matter of age is not distinctive, while in the majority of instances cerebral arteriosclerosis occurs at a later age than the majority of the cases of general paralysis, the former has been observed before the age of forty and general paralysis as late as the seventieth year. The mental deterioration in general paralysis is more general than in cerebral arteriosclerosis. A considerable degree of intellectual capacity is often long retained. The patients may have an insight into their disease and may reason in a logical way that is not possible in general paralysis. Delusions are far less constant than in general paralysis. Weber has described certain forms of arteriosclerotic disorders in which expansive delusions and motor excitement may be present. The delusions, however, differ from those of paralysis in that they are more in the normal circle of the patient's ideas of his personality and are less influencible by suggestion. Kraepelin

mentions distinctive differences in the disturbance of the memory. In arteriosclerotic disorders the retentive capacity is more affected than the reproductive memory, while in general paralysis this is reversed or both are affected in about the same proportion.

The neurological disturbances at the beginning are not as characteristic as in general paralysis. An articulatory speech defect is rarely present. The Argyll-Robertson pupil does not seem to occur in cases uncomplicated by syphilis. The pupillary disturbances are usually inequalities, slowed light reactions, and sometimes defective accommodations. The focal character of the neurological disturbances is more marked than in general paralysis. Aphasic disorders of speech are not uncommon in cerebral arteriosclerosis, but in general paralysis are rarely met with except in the atypical forms of Lissauer. The average duration of the disease is longer than general paralysis.

When there has been an infection with syphilis the differentiation between a mental disturbance from cerebral arteriosclerosis or cerebral syphilis may be difficult. This would be lessened by the absence of a Wassermann reaction in the blood. As a rule, cerebral syphilis occurs at an age earlier than arteriosclerosis. Kraepelin found that three-quarters of his cases occurred before the forty-fifth year.

The neurological disturbances of cerebral syphilis are often those from simultaneous involvement of various regions of the central nervous system. Paralysis of the eye muscles and Argyll-Robertson pupils occur in syphilis rather than in arteriosclerosis.

Owing to the frequent association of senile dementia with cerebral arteriosclerosis, the clinical differentiation between these two disorders is of more theoretical than practical importance. The chief clinical differences are the more focal character of the mental deterioration, the prominence of focal neurological disturbances, and the earlier age of occurrence.

Treatment.—The problem of the treatment of the cerebral disturbances from arteriosclerosis is intimately a part of the prevention and treatment of arteriosclerosis in general. Although varying degrees of arteriosclerosis of the vessels of the brain may be present without a proportionate degree of arteriosclerosis of the arteries of the trunk, the two are usually associated. While the prognosis for cure is bad, it seems possible to arrest the progress of the disorder by well-chosen mechanical and medicinal agencies and careful regulation of the mode of life. This is especially true of general arteriosclerosis, which Vierordt finds may be benefited in about 50 per cent. of instances. The treatment of the syphilitic vascular disorders, the coarse lesions of hemorrhage and softening, and the disturbances of the heart and kidneys which are often the source of the cerebral involvement has been considered elsewhere.

Arteriosclerosis is not an acute disturbance but is the result of harmful factors which have been exerting their influence over a long period of time. It is a combination of causes, rather than any one alone, which produces the pathological changes. The liability to cerebral

arteriosclerosis is lessened in those who can lead an even life unburdened by worries, and unusual emotional strain, moderate in habits of eating, and who are free from the influences of syphilis, alcohol, and tobacco. The effect which muscular work has in the production of arteriosclerosis apart from alcohol and syphilis seems to be undetermined. Cerebral arteriosclerosis is essentially a disease of advanced years, and in this period it is advisable that the individual's mode of life be adjusted to meet the changes which the body and nervous system undergo in physiological involution.

General Measures.—As soon as the first symptoms of cerebral arteriosclerosis are in evidence the individual should be relieved from business responsibilities or taken from his accustomed work and placed in surroundings quiet and free from all exciting influences. As a rule, more effective treatment can be obtained in a sanitarium or hospital than at home. The most important matter is to secure complete mental rest. The surroundings should be warm and dry, the clothing warm, and extremes of temperature should be avoided. The extent to which muscular activities may be allowed will depend largely upon the condition of the heart and blood pressure. Severe muscular work should not be allowed, but a moderate amount of light out-of-door exercise, such as walking, is often beneficial. If the patient desires to travel, high altitudes should be avoided. Hirsch finds that patients with cerebral arteriosclerosis, who have been accustomed to life in low levels do not do well in more than moderately high altitudes. Even at elevations of 1600 to 2000 feet the heart rate will be increased.

Quite often a considerable degree of improvement will follow these hygienic measures and rest cures may be repeated from time to time during the course with much benefit. At the beginning of the disease it is well to talk calmly and frankly with the patient, regarding his situation, but caution must be exercised to avoid making him unduly apprehensive and thus increasing the nervous symptoms. Laboring men and those accustomed to hard physical exertions, should be forced to give up their work. In the case of professional men and those engaged in comparatively quiet work some hesitancy should be exercised before advising that they should abandon their occupations. One should at least delay giving this advice until after the patient has been for some time under treatment.

The necessity of placing the patient in a special hospital for the insane will be determined largely by the degree of mental disturbance, the presence of delusions, the severity of the neurological symptoms, and the progress of the deterioration. The more mild forms of the disorder come only rarely into hospitals for mental diseases.

DIET.—In the routine treatment the diet should be carefully regulated. Absolute abstinence from alcohol is necessary. Tobacco if possible should be given up; should this be too great a hardship for the patient, not more than one or two mild cigars a day should be allowed. The diet should be a mixed diet of easily digestible foods. The intervals between meals should be shortened. The evening meal

should be light. Whatever causes flatulence should be avoided. Meat and the amount of salt taken should be reduced to a minimum. Water should not be taken at meals, but a liberal amount should be taken during the day. Hirsch finds that the headaches and insomnia of cerebral arteriosclerosis are lessened if the patient drinks from four to five pints. This should be taken in small quantities to avoid disturbed heart action from overloading the stomach. When there is an uncompensated heart lesion or contracted kidney the amount should be restricted. Krause and v. Noorden advise that this should not exceed three pints during the day. If possible coffee and tea should be given up; as a substitute one may use some of the preparations of coffee freed from caffeine. When headache, insomnia, and nervous disturbances are particularly troublesome it is of advantage to place the patient on an absolute milk diet. Lewandowsky advises that, as a general rule, one should not be too strict in the matter of diet with arteriosclerotic patients. Occasionally patients begin to improve as soon as they are allowed relaxation from a too rigid diet. The intestinal activity may be cared for by occasionally drinking some mild alkaline saline water.

In cases of high blood pressure Lauder Brunton advises the patient to drink, mornings before eating, a saline mixture compound as follows:

	Gm. or c.c.	
℞—Potassii bicarbonatis	1.8	gr. xxvij
Potassii nitratis	1.2	gr. xviij
Sodii nitritis	0.03	gr. ss
Aquæ	500	oz. xvj

EXERCISE.—If mild out-of-door exercise is not possible, considerable benefit may be obtained from mild massage and hydrotherapeutic measures. In the treatment of cerebral arteriosclerosis its intimate association with high blood pressure should be kept prominently in view. It seems probable that high blood pressure is not due directly to arteriosclerosis, but rather to the influence of certain substances which may accumulate within the blood, either from internal secretions or they may be toxic products of metabolism. In varying degrees of concentration these act as irritants to the vasomotor apparatus or as in uremic conditions on the central nervous system (Müller). One of the aims of treatment is to hasten the oxidation and elimination of waste products of metabolism.

HYDROTHERAPY.—Hydrotherapeutic procedures in many instances produce beneficial results. They can be used effectively only in special institutions. It is essential that these should not be hurried. Unless the patient can devote at least two hours to the bathing and the rest afterward, they should not be tried. They should not be given in any case in which apoplectic attacks have occurred. If the patient feels uncomfortable after the bath they should be discontinued. Mild perspiration is first induced in the electric-light cabinet. This is followed by a warm tub bath either partial or full length, the temperature of the water being 37° to 38° C. (98° to 100° F.). Cold tub baths should

not be used. While in the cabinet and tub an ice-cap should be placed on the head, or a towel kept wet with cold water, should be wrapped around the forehead. Lewandowsky has observed that the headaches and dizziness present in cerebral arteriosclerosis may be benefited by wrapping the head in hot compresses. These should not be left on longer than two to five minutes and may be repeated two or three times daily.

Medicinal Treatment.—The most important medicinal remedies in the treatment of cerebral arteriosclerosis are the salts of iodine. Either sodium or potassium iodide may be used, but the employment of the latter seems to be the more general. These should be tried in all cases. Their use has been particularly beneficial in cases in which syphilis was a factor. The best effects are obtained where they are given in small doses administered in milk and continued for a long period of time. Cramer advises beginning with 0.25 gm. (4 grains) of potassium iodide and increasing to 3 gm. (45 grains). Other preparations of iodides that are useful are iodipin, in doses of 1 gm. (15 grains), taken three to four times daily (Lewandowsky), and sajodin, 0.5 gm. (7 grains), taken four to six times daily.

For the insomnia which is associated with cerebral arteriosclerosis Hirsch recommends that when wakeful during the night the patient should take a few swallows of warm milk. A warm foot bath at bedtime may be helpful. Sometimes sleep will be induced by taking potassium bromide, 2 to 3 gm. (30 to 45 grains), in a glass of water. Care should be used in giving hypnotics; even veronal should be used in small doses, 0.25 to 0.5 gm. (4 to 7 grains). If there is motor excitement one may give moderate doses of potassium bromide or paraldehyde. When anemia and mild neurasthenic symptoms are present Runeberg advises the use of mild preparations of iron and arsenic. The most efficient treatment for the heart disturbances which frequently complicate cerebral arteriosclerosis is obtained from the use of digitalis. Reliable preparations of the tincture may be given in doses of 20 to 25 drops, four times daily, for four days, or until the pulse slows, and then discontinued. Similar courses of treatment should be repeated as the heart failure becomes urgent. In place of digitalis one may give digipuratum, 1 tablet (1½ grains) t. i. d. for three or four days. This may be given by mouth, by bowel, or hypodermically. In the end stages of the disorder the patient is best cared for in bed. The nourishment should be regular and means taken to prevent the development of decubitus and injuries from falling out of bed. Care must be exercised to prevent the development of bronchopneumonia, which is the immediate cause of death in a considerable number of instances.

SENILE MENTAL DISORDERS

In old age there physiologically occurs a varying degree of impairment of the capacity for intellectual functioning. This is evident in

the narrowing of the range of interests, the lack of ability to retain new impressions, and a gradual dulling of the emotional reactions. The maximum degree of physiological involution constitutes the clinical mental disorder of senile dementia. There is no sharply dividing point between the maximum degree of physiological senescence and the milder manifestations of senile dementia. Under normal conditions this maximum is reached gradually, but in senile dementia the rapidity with which this occurs is far greater. Anatomical researches of the last few years (Alzheimer, Fischer, Simchowicz) have shown that this senescence is the clinical manifestation of a characteristic histological process, which has made it possible to more closely circumscribe our clinical conceptions of senile dementia, especially from the mental disorders of cerebral arteriosclerosis. Although arteriosclerosis is a disturbance of advanced years, and is frequently found in association with senile dementia, the two processes are essentially different.

The frequency of senile dementia is difficult to determine from statistics. Its inseparable relations with normal senescence makes it impossible to determine the actual frequency of the disorder. In hospitals for the insane it forms from 12 to 13 per cent. of admissions.

Etiology.—The disease is the result of the involution changes in the nervous elements of the cortex due to factors which are associated with the process of aging.

The age at which the disorder begins varies considerably. It is rarely met with before the sixtieth year. Kraepelin finds that the majority develop between the sixty-fifth and eightieth year. Those instances in which the disease develops before the sixtieth year are at the present time quite impossible to differentiate from the presenile disorder of Alzheimer.

Hereditary influences are difficult to determine. Ziehen regards it as important for those cases which develop early (senium præcox) and has found it is not unusual for several cases of senile dementia to occur among members of the same family. The two sexes are about equally affected. In the presbyophrenic form Kraepelin finds that women outnumber the men.

Toxic influences, such as alcohol, lead, and nicotine, seem to have only an accessory part. Among the various theories that have been brought forward to explain the cause of aging, two points of view have become of special interest. There are those who believe that the process stands in relation to disturbances of the internal secretions, such as would result from inactivity of the thyroid gland (Horsley, Lorand). In a recent study of the internal secretions, Biedl concludes that it has not been proved whether these glandular changes are the cause or effect of the senile changes. The other view is that intestinal conditions may have an influence on aging. Ewald has suggested that the involutional changes of the body are due to disturbances of metabolism consequent upon atrophy of the intestinal tract. Metchnikoff has developed the theory that senile changes are the result

of the absorption of pathological products from the growth of intestinal bacteria.

Not infrequently the outbreak of the mental disorder seems to be associated with some physical disease, trauma, or surgical operation. The most common example of this is the senile delirium which develops during convalescence from operations for cataract. In most of these instances more or less well-marked signs of senile deterioration were apparent before the acute outbreak.

Pathology.—The pathological process which involves the central nervous system in senile dementia has resemblances to that which occurs in other organs of the body as a result of aging. In its histology it has certain peculiarities which are specific for senile involution of the brain, such as the severe degree of fatty degeneration which affects the nerve cells and the presence of the senile plaques. The essential process of senile dementia is independent of arteriosclerotic changes in the brain, although the two are often associated. The bones of the skull are commonly thinned from osteoporosis, and the membranes show rather constant changes. The dura mater is usually thinned and adherent to the calvarium. The pia mater is increased in thickness, especially over the frontal regions.

The brain weight is reduced and the cerebrospinal fluid compensatorily increased. The average loss in weight of the male brain has been given by Siemerling as 97 grams and by Noetzli as 200 grams. As a rule the atrophic changes are more marked in the frontal regions, and the central convolutions are little involved. In the atypical forms of senile dementia, such as those of Pick and Liepmann, the atrophies may be of unusual intensity in the speech areas or the cortical centres of the special senses. The large vascular trunks show varying degrees of arteriosclerotic changes. The histological changes in the pia mater are in part proliferative and in part degenerative. There is no true infiltration of the membrane, but in its meshes there are commonly accumulated various disintegration products.

The nerve cells undergo a variety of degenerative changes, the most constant of which is a marked accumulation of lipoid pigments within the cell body. In many instances the quantity of this is so great and the structure of the cell so severely changed that it amounts to a process of fatty degeneration. This type of change is most intense in the frontal regions and among the cells of the upper strata. A more severe type of alteration is sometimes present among the cells of the deeper strata. In this the cell structure degenerates into fine granules, the nucleus is severely changed, and in some instances the entire cell may disappear. In severe forms of senile dementia, notably of the presbyophrenic type, there has been frequently found a characteristic cell disease in which the neurofibrils are peculiarly altered. This type of change was first described by Alzheimer in a peculiar form of mental disturbance which occurred at a presenile age. Since then it has been shown that while this type of cell change is a characteristic feature of Alzheimer's disease it is of frequent occurrence in the pathological

process of senile dementia. Cells affected by this degeneration show peculiar arrangements of their neurofibrils into whorls, loops, and masses, which may persist after the remainder of the cell structure has disappeared. The condition seems to be the result of chemical changes of the neurofibrils which allows them to become covered with peculiar deposits and show unusual staining qualities. This type of change may be found among cells in any region of the cortex, but chiefly in the upper strata, and in greatest numbers in the cornu ammonis and frontal regions. In those cases which have the Alzheimer type of neurofibril degeneration Simchowicz has noted the occurrence of cells showing coarse granules, not unlike Negri bodies in their form, which are most numerous in the cornu ammonis.

In old cases there is a perceptible thinning out of the number of nerve cells and a peculiar patchy interruption of the normal cortical architecture. The nerve fibers are decreased in numbers in those regions where cell degeneration is most intense. This loss is best noticed in the layer of tangential fibers and the supraradial network.

The neuroglia tissue shows both progressive and regressive changes. There is an increase of fine neuroglia fibers which parallels the atrophy of the nervous elements. In the nerve-cell layer the loss of nerve cells is marked by small areas in which fine glia fibers are more closely meshed together. Such massing of the glia fibers according to Alzheimer furnishes a focus for the development of plaques. The glia cells, especially in the vicinity of the plaques, contain considerable amounts of lipoid pigments.

The bloodvessels of the brain in senile dementia show a variety of pathological changes. These are in large part arteriosclerotic changes of the vessel walls, and are not specific for the histological process of senile dementia. Simchowicz found a total absence of arteriosclerotic changes in one-half of his cases of senile dementia. It is probable that any vascular increase is relative and due, as Cerletti has shown, to the atrophy of surrounding nervous structures and readjustment of the vessels to the altered condition. The widespread disintegration among the nervous elements of the senile brain produces a variety of substances which find their way toward the vessels and enter into their lymph spaces. These are largely lipoid granules, but there occasionally occur masses and particles of substances which agree in staining qualities with those which lie in the plaques.

In the cortex of all cases of senile dementia (Simchowicz) there are large numbers of miliary focal lesions which appear as deposits of granular or homogeneous substances and ultimately become encapsulated with neuroglia fibers. These have come to be known as plaques or "Drüsen." In their earliest stages the focus shows abundant lipoid substances which later find their way into phagocytic elements. There accumulates in the glia fiber mesh-work of this area certain substances which form the basis of the plaque. In and around the area are club-shaped terminations of the free ends of neurofibrils and glia cells in various stages of reaction. Plaques have been found

in few numbers in the brain of the non-insane of advanced years; but in any considerable number only in senile dementia and Alzheimer's disease. They occur in all parts of the cortex, rarely in the white substance, and have been found in the thalami and cerebellum. They are largest in size and in greatest numbers in the cornu ammonis.

These structures were first noted by Redlich in the brains of seniles and within recent years their importance for the process of senile dementia has been the subject of a number of special studies. The result of all seems to warrant the conclusion of Simchowicz that "the absence of placques or their occurrence in few numbers is against the presence of senile dementia."

The changes in the cerebellum are of a degenerative character chiefly in the cells of Purkinje, which show excessive amounts of lipoid granules, and proliferative changes in the glia through the various layers and around the bloodvessels.

The spinal cord in senile dementia may show atrophic changes in both gray and white substances with a parallel increase of the neuroglia. The cells of the horns show large amounts of lipoid substances and partial loss of the processes. In the white substance there is a patchy increase of fine neuroglia fibers, corresponding to a slight loss of nerve fibers. These changes are most prominent in the region of Goll's column.

Symptomatology.—The earliest disturbances involve the memory, particularly for the retention of new impressions. This differs little from the forgetfulness of old age, except that it is more general in its range. The memory for the earlier experiences is for a long time well preserved and even late in the disease events of early life may be recalled with clearness. Ultimately these also become involved in the general deterioration. There results from these disturbances, defects which are filled in by the patient with fabrication of invented experiences. Their perceptions are less clearly grasped and there results a confusion as to the environment and their own relations. The orientation becomes impaired. They make inaccurate statements regarding dates and their own personal location. This defect gradually increases and is in harmony with the memory disturbance and the lack of accurate understanding for their environment; ultimately there may result an absolute loss of all knowledge of their relations to time and surroundings. The association processes early lose their normal flexibility and move largely in habitual paths. Ziehen mentions the early disturbance of associating in "inverse sequence" and finds that marked errors are made in such tests as repeating the names of the months in inverse order. The range of thought becomes restricted and ultimately may be reduced to a mixture of inaccurate memories.

The affective reactions show marked changes. In large degree this is dependent upon the intellectual disturbances which are present. They lose their former politeness and sense of decency in their relation with others. From this not infrequently develop various actions

which bring them into conflict with the law. They become fault-finding and irritable when opposed. In other instances they show a silly and childish affective reaction toward their various experiences. The moods may change suddenly, or in some instances an emotional depression may be continuous and so dominate the clinical symptoms as to constitute a special group of depressed forms of senile dementia. The emotional deterioration progresses through the course of the disease and ultimately may result in an apathy, total for all, excepting their personal interests.

Hallucinations and Delusions.—Hallucinations and illusionary disturbances are present in many instances. These are both auditory and visual, the former as a rule being the more common. They are usually more active during the night and rarely dominate the clinical picture excepting in the delirious phases. It is not uncommon to observe hallucinations, usually of sight, developing in the course of convalescence from cataract operations. In one instance we have observed auditory hallucinations, with delusions of a persecutory type, developing a few days after the operation. Delusions are commonly present during the course of the disease. They are chiefly delusions of persecution or of some imagined physical disorder. These are based in part on their hallucinations and their inaccurate grasp of their relations to their surroundings and the disturbances of memory. Rarely one may observe delusions of a grandiose type. The clearness and plausibility of the delusions becomes impaired by the progressive deterioration.

The conduct and attitude of the senile dement is influenced largely by his moods and delusions. In some instances they show a characteristic childishness; in others they may be dull and inactive as if in a mild stupor. The lack of clear grasp of their relations to their environment leads these patients to wander away from home, and they easily become lost. During the daytime they may undress for bed as if it were night or spend their time collecting useless trifles. It is common for senile dements to show during the day, or in their sleepless nights, busy activities as if they were following some occupation, as two old men who spend much of their time moving chairs about, imagining that they are logging. There is something so characteristic about this activity of the senile, that it has led to its designation as "occupation delirium." Among the chief abnormalities of conduct are acts of sexual misconduct. These may be assaults on children, exposing the genitals, or abnormal methods of sexual gratification, such as masturbation and pederasty. These find their explanation in the diminished sexual potency of the senile and exaggerated sexual impulses which lack the normal restraint because of the deterioration of the ethical and moral feelings.

Physical Symptoms.—As physical symptoms there occur the various evidences of the senile involution of the body structure; such are the poor nutrition, the atrophies of the skin, the loss of teeth and hair, the occurrence of cataract and difficulties of hearing. The body

shows the occurrence of the arterial diseases peculiar to the period. The bones become more fragile and are liable to fracture. The muscular power is lessened, either uniformly, or in mild local paralyses. Quite commonly the facial or hypoglossal nerves are involved and sometimes there is hemiplegia. The chief sensory disturbances are a general lowering of the reaction to stimuli, defective vision, and difficulty of hearing. The pupils are often of narrow width and may show a slowed reaction to light. It is doubtful if the Argyll-Robertson pupil ever occurs in senile dementia apart from syphilis. The tendon reflexes are commonly exaggerated.

Clinical Varieties.—Senile dementia may run its course in a variety of forms, which are determined by differences in clinical symptoms. In a considerable number of instances, an otherwise typical course is modified by arteriosclerotic complications, or by differences of localization of the anatomical process in the brain. Many cases of senile dementia show little more than a progressive intellectual deterioration with the characteristic senile memory disturbances, and no marked delusions or unclear consciousness. Such symptoms merge without sharp limitations into those of physiological senescence, and represent the simple form of senile dementia.

The best characterized group is the condition described by Wernicke as presbyophrenia. Here there is a striking disproportion between the ability of the patient to carry on an orderly conversation and yet have a profound disturbance of memory and orientation. In their conversation they bring in reminiscences of impossible experiences and make contradictory statements without noticing the discrepancies. The memory disturbances have close resemblance to those of Korsakow's psychosis.

Senile delirium is a form of senile dementia in which the course is characterized by unclear consciousness. Hallucinations are usually present, the mood is one of anxiety, and the course is marked by more or less motor excitement. These cases frequently terminate fatally from exhaustion or pneumonia. In some instances the delirium may disappear suddenly but is liable to recurrence. There are some cases of senile dementia in which the prominence of delusions resembles a paranoid condition. These patients are irritable and complaining and gradually develop delusions of persecution. The memory is characteristically senile and ultimately the delusions fade away in the progressing deterioration.

It is not uncommon for the clinical course to be modified by focal neurological disturbances. These may result from arteriosclerotic complications, or from localization of the senile atrophic changes with peculiar intensity, in the speech areas or those of the special senses. This latter type represent the atypical forms described by Pick and Liepmann, which clinically show a variety of aphasic and apraxic disturbances.

Diagnosis.—The late period of life in which the disease occurs eliminates most of the other mental disorders. In the milder forms

of senile dementia, the differentiation from the mental peculiarities of physiological senescence must be more or less arbitrary. The distinction is not difficult to make where the memory disturbance is of a marked degree and the clinical course is featured by delusions, excitement, and the delirious states of consciousness. The differentiation of cases of senile dementia developing in the period between fifty-five and sixty-five, from some of the forms of presenile mental disorders, particularly Alzheimer's disease, presents much difficulty. At the present time the pathological process present in the brain in this disease cannot be differentiated from that found in many cases of senile dementia, particularly the presbyophrenic forms. Clinically the differentiation rests chiefly upon the earlier age of occurrence of Alzheimer's disease, its more rapid and severe course, the greater frequency of irritative and paralytic neurological symptoms.

From arteriosclerotic mental disorders the differentiation is not always possible owing to the frequent association of the two processes in the later years of life. Its distinction is often more of pathological rather than clinical differentiation. Most cases of senile dementia develop at an older age than arteriosclerotic mental disorders, and the clinical symptoms are more those of a diffuse cerebral involvement than the focal disturbances which usually characterize the arteriosclerotic disorders.

The fact that general paralysis sometimes occurs even as late as the senile age (Alzheimer, Siemerling) may in some instances necessitate its differential diagnosis from senile dementia. The absence of characteristic changes of the cerebrospinal fluid in senile dementia is the most important differential point. Such neurological disturbances as the Argyll-Robertson pupil, the absence of tendon reflexes, the stumbling and eliding speech are not found in senile dementia. The occurrence of apoplectiform attacks in senile dementia is followed by more residual disturbances than in general paralysis. The psychical differences are sometimes less distinctive. Kraepelin finds that in senile dementia the capacity for the retention of new perceptions suffers disproportionately to the ability to recall earlier experiences. In general paralysis this distinction does not long exist in the same degree. The progress of the course in the two diseases shows important differential points. The anatomical differentiation is determined by the absence of plasma-cell infiltration of vessels in senile dementia and the absence of plaques in general paralysis.

The similarity of the memory disturbances of Korsakow's psychosis and presbyophrenia may require differentiation of these two clinical conditions. As a rule Korsakow's psychosis develops earlier than presbyophrenia; Kraepelin finds 55 per cent. developing before the fiftieth year. The absence of alcoholism and neuritic disturbances are unusual in Korsakow's disease. The onset, course, and termination are quite different in the two diseases. Unusual difficulties of diagnosis would occur when alcoholism was a factor in a mental disturbance developing in senile years.

Alzheimer's Disease.—The clinical limitations of the pathological process associated with senile dementia is at the present time unclear. The same process of placque formation, fatty degeneration of nerve cells, and intracellular degeneration of the neurofibrils have been observed in a series of mental disorders which have occurred in years much earlier than senile. These belong to a type described in 1906 by Alzheimer and since then known as Alzheimer's disease. The clinical position of these cases is undetermined; Kraepelin and Alzheimer suggesting that they are atypical forms of senile dementia and Perusini that they represent an independent disease. The few cases that have as yet been reported have shown much that is common in their symptomatology and pathology.

The age of occurrence has ranged between thirty-one (Schnitzler) and sixty (Perusini). The onset is characterized by rapidly increasing disturbances of memory for both recent and old experiences. They forget how to do accustomed tasks; cannot find things they have recently laid down, and soon become incapable of doing their former work. A very complete degree of disorientation is early noticeable. They become unable to find their way about, and in various situations they appear bewildered and unable to comprehend clearly. The intellectual ability fails rapidly and early in the disease a severe degree of dementia may be attained. They are usually dull and apathetic; in some instances there have been episodes of anxious excitement. Both visual and auditory hallucinations may occur. Delusions, usually of suspicion, have in a few instances, been transitorily present. Excepting in their severity and the rapidity with which the deterioration occurs the mental features of the disease are not unlike senile dementia. It is, however, unusual to observe in senile dementia such prominence of neurological disturbances as mark the course of Alzheimer's disease. There have been noted, epileptiform convulsions, facial and hypoglossal palsies, atrophic-spastic paralytic disturbances of the extremities and trunk muscles, tremors and muscular twitchings, bulbar disturbance of speech and swallowing and in nearly all cases some sort of aphasic, agnosic, or apraxic disturbances. In its terminal phase the patient becomes bedridden and the severest degrees of dementia are attained. Death has resulted from marasmus or pneumonia.

The brain shows a high degree of atrophy. In the case of one woman who died four years after the onset the weight was reduced below 880 grams. The histological process is that of a marked degree of degeneration of nerve cells and fibers with the occurrence of either numerous placques or degenerations of the intracellular neurofibrils. In most instances both have occurred. The placques are apparently the same structures met with in senile dementia, and occur as miliary foci of tissue disintegration or deposits of homogeneous substances with surrounding glia reactions. They are widely distributed through the cortex, but in our own cases have been most numerous in the region of the angular gyri. Apart from the cortex they have been found in the thalami, the cerebellum and claustrum.

The nerve cells always show a variety of regressive changes, the most prominent of which is a severe degree of fatty degeneration. Cells showing the neurofibril degeneration occur in all regions of the cortex, in a degree rarely met in senile dementia. The intracellular neurofibrils are of increased thickness, often fused together, or formed into loops, whorls, and rounded masses, which persist after the disintegration of the cell body and ultimately disappear. The process present in the cortex is accompanied by the formation of large amounts of disintegration products and an active elimination by scavenger cells, especially intense around the placques. Bloodvessel changes are not constant and are apparently those of an incidental arteriosclerosis.

In the spinal cord there have been found varying degrees of degeneration in the course of the pyramidal tracts, in both central and lateral columns. This is probably secondary to the atrophic degenerative process present in the central regions of the cortex.

The clinical diagnosis of Alzheimer's disease presents many difficulties, and its positive differentiation at the present time in many instances may be impossible. Its differentiation from senile dementia becomes of advantage only if one differs from the view that Alzheimer's disease represents an atypical or precocious occurrence of the pathological process of senile dementia. At the present time its anatomical differentiation does not seem possible.

There is much to uphold the view of the independence of Alzheimer's disease from senile dementia. As distinctive points there are the early age of occurrence (we have seen a very severe example of the disease begin at the age of thirty-three), in some cases the lack of any outward evidences of senility in the body; the rapidity with which the patient deteriorates; and the prominence of the neurological disturbances, which in their ensemble are rarely as marked in senile dementia.

From mental disorders of cerebral arteriosclerosis the differentiation would be aided by the absence of cardiovascular disturbances and by the early occurrence of the deterioration, which reaches a degree of severity out of proportion to the focal disturbances. From typical forms of general paralysis it may be distinguished clinically by the absence of the characteristic pathological changes in the cerebrospinal fluid, the lesser prominence of delusions, the uncharacteristic speech disturbance, and the presence of the aphasic and apraxic disturbances. From Lissauer's atypical forms of general paralysis the diagnosis would show many difficulties. In exceptional instances the differential diagnosis from tumor of the brain has been of importance.

Treatment.—Senile dementia is an incurable disease, and there is no accurate knowledge that the pathological process in the nervous system may be arrested by any special methods. The wide differences in its severity and the remissions which the progress of the disease shows when no treatment of any sort is given, makes it difficult to determine the value of any routine or special therapeutic procedures. The most promising point of attack is through prophylaxis. Whatever may be done to reduce the strain upon the nervous system from

excessive mental and physical exertions must have its influence in preventing the breakdown of a brain which may be predisposed. While we know of no direct cause for the disease, it would seem important to avoid all excesses and agencies which have a harmful action on the nervous system, such as alcohol, tobacco, indiscretions of diet, and whatever may impair its functional capacity and lessen its ability to go through the unavoidable physiological involution without pathological disturbances. The problem of the prevention of senile dementia is intimately associated with that of the prevention of mental and nervous diseases in general, and as our interest in matters of public and personal hygiene increases, it is inevitable that the tendency toward pathological senile involution will be lessened. Senile involution does not always bring a serious degree of mental impairment and many an old person finishes his days with clear mental grasp and undisturbed thought. Siemerling calls attention to the remarkable mental vigor of the chemist Bunson and the historian Mommsen, both of whom died at advanced ages and showed a severe degree of brain atrophy. When the evidences of beginning senile dementia appear, all possible care should be taken toward preventing, if possible, the further progress of the disease. The patient should be relieved from all business worries and responsibilities and should live a quiet life free from all excessive demands on mind and body. The impaired memory and diminished flexibility of thought affect his judgment, and his actions not only may harm himself, but the interests of others.

Whether or not the patient with senile dementia should be cared for at home or in an institution depends largely on the ability of the relatives to provide adequately for his care and treatment in home surroundings; upon the severity of the symptoms, and upon the ability to provide a proper protection of the community from the carelessness and sexual delinquencies which frequently occur during the disease. Those showing the simple form of senile dementia without excitement or marked delusions are usually suitable for care in the home, or under special custodial care in private hospitals or almshouses. The problem of the care of these more mild forms is largely related to the wish of the family to assume the undoubted burden which such care entails, or their ability to provide financially for special custodial care outside of public institutions. Home care is also possible for many patients who have been placed in institutions during delusional or delirious phases of the disease, when these, after a longer or shorter time, pass away and leave the patient in a state of simple deterioration.

It is usually necessary to send to special institutions those who have delusions which control their conduct or who are delirious and show hallucinatory excitement. Even the patient with simple deterioration may show such carelessness about the home, especially with fire, that they become a source of danger to the home and community. Institution care is usually needed for the considerable number of senile dements who show tendencies toward sexual assaults and violation of the laws against indecency of conduct.

There is a general impression among those who are in charge of public institutions for the insane that there is an increasing tendency on the part of families to allow the public and private institutions to assume the care of their senile members when their mental faculties fail. This may in part be due to a better regard for the efficiency of these institutions, but there is no doubt that the demands of ordinary family and social life have brought a lessened willingness on the part of families to undertake the difficulties which surround the care of these patients.

Whether in the home or an institution the treatment must be largely symptomatic. The diminished vigor and usually poor nutrition of the senile dement requires a specially regulated mode of life and personal care. The clothing should be warm and exposure to extremes of temperature should be avoided. The well-known obstinacy of old people makes it difficult to follow any regular routine of treatment or care. The frequent combination of general and cerebral arteriosclerosis with senile dementia makes it essential to avoid whatever may cause increase of blood pressure, or throw any strain on a weakened heart. Care should be taken to prevent any unusual emotional disturbances or overexertion physically.

EXERCISE.—Moderate exercise out of doors, or passive movements with massage, will assist in keeping up the physical vigor and will be of value in the regulation of the bowel movements. Constipation is often a troublesome feature of senile cases. When mechanical procedures are not effectual, laxatives must be employed. Some care is needed in the selection of a proper medicine and any tendency toward producing too great drain upon the body should be avoided. Enemas of various sorts may have to be frequently used. They are only temporary in their effects and usually furnish an unsatisfactory emptying of the bowel.

DIET.—The matter of diet is of considerable importance. Old persons are peculiarly stubborn and whimsical in their eating habits; some eat too much, others too little. Unless there are complications, food should be taken only at meals. These should be simple and the interval between meals shortened. The heartiest meal should be at midday. Heavy and late evening meals will produce sleeplessness. The food should be easily digestible and taken in small quantities. The variety should be as great as possible, but those foods which cause flatulence should be avoided. Milk, if well borne, should form a principal element of diet. Wine and tobacco often produce unpleasant effects in old people, even in restricted use. Most of the green and dried vegetables may be used, but the quantity of meat taken should be reduced to a minimum. The occurrence of hyperacidity following the use of fruits may be counteracted by sodium bicarbonate.

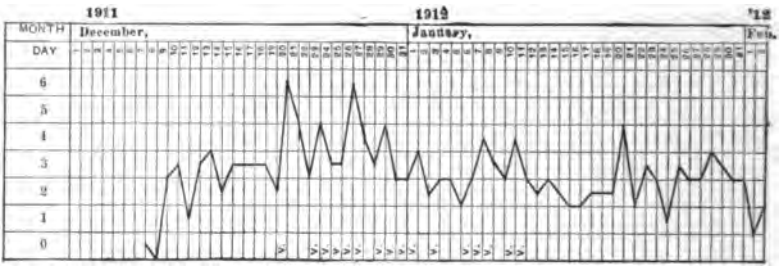
NECESSITY FOR WATCHFULNESS.—If the patient is cared for at home it is essential that he be carefully watched, according to the demands of the individual case. In the anxiety of the senile depression, patients sometimes commit suicide. The senile dement is often liable to wander

away from home and in moments of unclear orientation and understanding may be in more or less danger. When the disease is advanced and efforts are made to care for the patient at home, the same difficulties that surround their care in institutions may have to be met, especially their carelessness with fire.

Some of the most troublesome conditions to meet are the offenses against decency. Senile dements may show a complete change in their morals; they become obscene; and may be filthy at table and in the care of their person. They must be guarded against making sexual assaults, especially on children. They may expose their genitals or show a sexual coarseness that formerly was altogether foreign to them. Such change in conduct usually brings about their commitment to a hospital or asylum.

Medicinal Treatment.—Whether at home or in the hospital there are few senile dements who do not show some disturbance of sleep. There are patients who sleep too much during the day but the most

FIG. 49



Sleep chart.

troublesome feature is the insomnia. In the milder cases dietetic regulation may be of service. The close relationship between food and sleep has been commonly recognized, and in old people a heavy meal taken after 6 o'clock is liable to produce a restless night. Friedenwald suggests that a troublesome sleeplessness may be overcome by a glass of hot milk, hot toddy, or some hot liquid at bedtime, and that sometimes a patient will drop off to sleep after awakening in the early morning hours if given a drink of warm milk or mild stimulant. If this is insufficient one must resort to medicines. The finding of a satisfactory hypnotic is often a matter of some difficulty and care must be always exercised in giving hypnotics to the aged, as they seem to work with much uncertainty. The mildest of the many hypnotics available is potassium bromide, which may be given in doses of 2 or 3 gm. (30 to 45 grains), taken in a half-glass of water before bedtime. Its chief objection is its liability to produce gastric disturbances. Veronal may be given in doses of 0.3 to 0.7 gm. (5 to 10 grains), in hot water or hot milk. In most senile cases it shows a slight influence,

but does not give the desired amount of sleep. The sleep curve given in Fig. 49 shows the deficient sleep in a case of senile depression. Without veronal the sleep averaged less than three hours; while with ten grains of veronal given at bed time it was only possible to increase the average sleep to a little more than four hours.

One of the most efficient hypnotics is paraldehyde, which may be given in an evening dose of 4 to 6 gm. (1 to 1½ fluidrams). Other hypnotics which may be used are amylene hydrate, in an evening dose of 3 to 5 c.c. (45 to 85 minims); trional 1 to 2 gm. (15 to 30 grains); sulphonal 1 to 2 gm. (15 to 30 grains); dormiol, given in capsules in doses of 0.5 to 3 gm. (7 to 45 grains). Chloral is to be avoided in senile cases on account of the frequency of vascular and cardiac disturbances.

Those patients who have depressive delusions with anxiety are best treated with opium. Kraepelin advises the use of the tincture, beginning with 10 to 20 drops, given two or three times daily, and gradually increasing until the original dose is increased two or even three times. When the minimum dose which will quiet the anxiety is reached, it may be held for some days and then gradually reduced. While less safe than the tincture of opium, morphine may be given hypodermically in doses not exceeding $\frac{1}{6}$ gr. at one time.

For the hallucinatory excitement or motor restlessness the most efficient treatment is the prolonged warm bath. The temperature of the water should not vary on either side of 36° to 37° C. (96.8° to 98.6° F.), and the patient should not be left in the tub for longer than two hours.

With proper regard for the complications with heart lesions and arteriosclerotic conditions, the moist pack may be used as a substitute for the warm bath. The patient is wrapped closely in a sheet lightly wrung out after being wet with water of a temperature of 33° to 36° C. (91.4° to 96.8° F.). Over this is wrapped a woollen blanket. It is often advisable in resistive patients to allow the arms to be left free from the wrappings. An ice-cap is placed on the head or a towel wet with cold water is wrapped around the forehead. From time to time the temperature should be taken and if it rises more than two degrees the patient should be released. The patient may remain in the pack for ½ to 2 hours, but not longer.

If it is necessary to use sedative medicines to quiet the excitement it is best to use hyoscine hydrobromate hypodermically in doses of $\frac{1}{100}$ to $\frac{1}{60}$ grains combined with $\frac{1}{8}$ to $\frac{1}{6}$ grains of morphine. In the delirium of senile dementia Ziehen recommends the use of some of the hypnotics given in small doses. Trional given 2 or 3 times daily in single doses of 0.5 gm. (7 grains); veronal given 2 or 3 times daily in single doses of 0.5 gm. (7 grains); dormiol given 2 times daily in single doses of 0.6 gm. (10 grains); neuronal 2 times daily in single doses of 0.8 gm. (12 grains); hedonal given 2 times daily in single doses of 0.6 gm. (10 grains). When there is a weak and failing heart it is advisable to give during the day small amounts of good wine or

whisky. When the heart difficulty becomes severe one should give digitalis.

The feebleness and increased fragility of the bones of senile dements render them peculiarly liable to injuries and fractures from falling. When they are free to go about, care should be taken that they be protected from falling on slippery floors and if in bed it is often advisable to have high sides to prevent them falling out.

In the advanced stages of the disease the patient becomes bed-ridden, and then much care is needed to prevent the development of decubitus. Should this occur its healing will usually take place rapidly if the patient is kept for long periods in the warm bath.

The termination of the disease presents problems of treatment of diseases to which seniles are peculiarly liable, such as pneumonia, heart failure, cerebral hemorrhage and marasmus.

SENILE AND ARTERIOSCLEROTIC DISORDERS OF THE SPINAL CORD

In advanced age the spinal cord undergoes an atrophy and degeneration in many ways comparable with the involution changes which occur in the brain during this period. In some instances these changes have produced no clinical disturbances; in others they have been of mild form and more or less incidental to the mental and neurological disturbances associated with senile dementia and cerebral arteriosclerosis. In their most marked form they produce the clinical symptoms of senile paraplegia.

In many cases of senile dementia and cerebral arteriosclerosis there occur clinical symptoms which are referable to structural changes in the cord; some of these changes are secondary to cerebral degenerations, others are referable to localized disturbances within the cord itself. Such are the disturbances of movement, the uncertainty and stiffness in walking, mild ataxia, changes in tendon reflexes, impaired muscular strength, and atrophies. The pathological lesions producing these disturbances of function are present in both gray and white substances of the cord.

The nerve cells, according to Lafora, show severe alterations, but there are no systemic degenerations. The glia elements undergo progressive reactions, and there occur various pathological types of cells of ectodermal and mesodermal origin; some of these are concerned in scavenger work with the products of the disintegrating nervous elements. The bloodvessels are increased in numbers and their walls often show degenerative changes.

There seem to be no distinctive differences between the cord changes in senile dementia and arteriosclerotic brain disorders. Lafora concludes that in arteriosclerosis the vascular and perivascular changes are more marked and in senile dementia the changes among the nervous elements are more prominent. The differences on the whole are more quantitative than qualitative.

Sanders found in a study of senile cord changes that the cause of the degenerative process was arteriosclerosis of the vessels of the spinal cord in diffuse or focal distribution. He was able to group his findings into three forms: (1) A mild form, with slight diffuse loss of nerve fibers, slight secondary proliferation of glia, and slight degenerative changes of the nerve cells. These changes all lie within the limits of physiological senescence. (2) A more severe form with circumscribed focal degenerations, severe sclerosis, and severe cell degeneration. (3) Arteriosclerotic degeneration of the spinal cord, with multiple focal degenerations of an acute type. These cases usually occur in presenile years.

Simchowicz found in senile dementia that the changes in the gray substance, correspond to the changes in the senile cortex. Plaques have never been observed in the cord, but the nerve cells show extreme fatty degeneration and the glia fibers are increased. In the white substance there occur multiple focal areas of degeneration with parallel growth of glia fibers. These are irregularly scattered through the cord, but preëminently affect the medial part of the posterior columns.

Senile Paraplegia.—In advanced age there sometimes occurs a characteristic impairment of the muscular power of the legs, which progresses with the clinical symptoms of a spastic paraplegia.

The general use of the term senile paraplegia has brought together a variety of disturbances of quite different pathology. Some of these are of functional origin, some are due to organic disturbances of the spinal cord, and some are a combination of organic and functional disorders. The functional disturbances are hysterical in their nature and are senile forms of astasia-abasia or staso-basophobia.

Forms.—The organic disturbances are due to degenerative changes dependent upon arteriosclerosis or senile atrophy, largely in the cerebral or spinal course of the pyramidal fibers. In their clinical course these organic forms of senile paraplegia differ according to the localization of the pathological process. Based on the pathology and localization of the pathological process, Lejonne and Lhermitte have grouped the forms of senile paraplegia into three divisions: (1) A cerebral form, "paraplégie lacunaire." (2) A spinal form, "paraplégie myélopathique." (3) A muscular form, "paraplégie myopathique."

1. Cerebral Form.—The cerebral form, "paraplégie lacunaire," begins with a lessening of the muscular power of the legs. The gait becomes peculiar; it is difficult to raise the feet from the floor; the legs are moved stiffly, and the advancing leg is moved forward with a peculiar adduction movement. This uncertainty becomes exaggerated when the direction of the movement is changed, as in turning around. There is no Romberg symptom. The tendon reflexes are increased. In the early stages Babinski's sign is inconstantly present. Cutaneous reflexes are undisturbed. There are no sensibility disturbances. The symptoms become exaggerated as the disease progresses. The muscular power of the legs fails until the patient becomes unable to walk.

Babinski's and Oppenheim's signs are then usually positive. There is incontinence of bladder and bowels and decubitus easily occurs. In a number of instances the spasticity becomes extreme and contractures develop. The arms are sometimes involved but never to the same degree as the legs. During the course there has been an increasing failure of memory and a greater or less degree of intellectual deterioration. Death usually results from marasmus or terminal infection.

In this group the brain shows the atrophy usually found in the milder forms of cerebral arteriosclerosis. In the thalami, corpora striata, and the posterior limb of the internal capsule are multiple small focal defects, which microscopically show the reactions from small hemorrhages or softening. There is loss of nervous elements, and through the area are various products of degeneration and epithelioid cells with inclusions. In and around the area are glia elements in various progressive changes. The pyramidal tract is more or less degenerated in its course through the cord, and often there is degeneration of the marginal fibers of the cord, involving the cerebellar tracts and less frequently degeneration of Goll's column.

2. SPINAL FORM.—The spinal form, "paraplégie myélopathique," is gradual in its onset. Intense pains in the legs are among the earliest symptoms. The muscular strength of the legs weakens, and they may suddenly become unable to support the weight of the body. After a period of rest the patient may proceed. Walking becomes increasingly difficult and the patient assumes an attitude not unlike that of Parkinson's disease. The body is held stiffly, slightly inclined forward, and the eyes are kept fixed on the ground. The flexors and extensors of the upper leg are most affected. Aside from a slight diminution in tactile sensibility there are no sensory disturbances. The tendon reflexes are exaggerated, and Lhermitte found a positive Babinski sign in about one-third of his cases. The paralysis increases to a total paraplegia of the legs. The arms may show increased tendon reflexes, but these are rarely as marked as in the legs. The legs become flexed in strong contractions. The sphincters of bladder and bowel are paralyzed, and trophic disturbances, such as decubitus, easily develop. As a rule a considerable degree of mental impairment is present toward the end of the disease. This form of paraplegia may last for years, usually longer than the cerebral form. The patient becomes more helpless and confined to bed. Death may come from marasmus or terminal infection.

The pathological process is essentially limited to the spinal cord. Whatever changes are present in the brain are incidental. The spinal cord shows patches of degeneration chiefly involving the lateral pyramidal fibers in the lumbosacral region. These bear an intimate relation to arteriosclerotic vessels. As in the cerebral form there is commonly found a marginal degeneration and infrequently a combined degeneration of the lateral and posterior columns. The bloodvessels show a variety of degenerative changes, chiefly endarteritic or periarteritic, with hyaline degeneration of the walls.

3. MUSCULAR FORM. — The muscular form, "paraplégie myopathique," is primarily not a cord disorder, but is due to a defective nutrition of the muscles resulting from arteriosclerosis of the vessels to the muscles of the legs. Its clinical symptoms are essentially paraplegic. Lhermitte has observed this type of disorder only in women after the seventy-fifth year. The onset of this type is characterized by an increasing weakness of the legs, accompanied by severe cramp-like pains. The muscles of the legs progressively atrophy. The arms are unaffected. Extreme contractions develop in the legs. "The patients as they lie in bed have a characteristic attitude, the trunk is bent forward, the thighs are flexed on the abdomen, the legs on the thighs, the heels often lie close against the buttocks." Manipulation of the muscles or passive movements produce much pain. Sensibility and sphincters are unimpaired and the tendon reflexes are weakened only in proportion to the general amyotrophy that may be present. The electrical reactions show no qualitative changes. The patients in the terminal phases present a most extreme emaciation. Mental deterioration does not occur. Death usually results from marasmus, digestive or nephritic disturbances.

The central nervous system shows no pathological alteration that will explain the clinical symptoms. The muscles are greatly atrophied and their bloodvessels show severe arteriosclerotic changes.

"Trepidante Abasie."—A peculiar group of symptoms associated with senile cord disorders has been described by Petrén as "trepidante abasie." The symptoms are largely due to organic changes, but show prominently the influence of psychogenetic factors. These patients stand without difficulty, but when directed to walk, they stand hesitatingly, as if afraid to start. The body is inclined forward, the legs begin to bend rhythmically at the knees and hips, and as soon as the heel is lifted from the floor the leg is violently extended; these movements continue for a short time, the foot making a peculiar clatter on the floor. Sooner or later these cease and the patient walks about as well as normally. The primary disturbance is an arteriosclerosis of the vessels of the central nervous system or the extremities, and the difficulty in moving which results gives rise to pathological ideas as to their ability to walk and thus to the trembling and hesitation in starting.

Etiology.—The chief etiological factor in the causation of the senile cord disorders are age and arteriosclerosis. Lhermitte has found that in some instances paraplegic disturbances have developed after trauma to the legs or sacral region.

Diagnosis.—In the diagnosis one must eliminate the disturbances of movement which are residuals from former attacks of rheumatism, from old hemiplegias and from tabes of long duration. Its differentiation from functional disorders is made by the comparative infrequency of hysterical astasia-abasia in seniles and the lack of association with any emotional trauma. In bed the hysterical patient may have good coördination of movements, and no loss of muscular force.

When on their feet their legs give way and they cannot go without assistance. Lhermitte calls attention to the fact that the hysterical patient can walk even for long distances with the aid of a cane, and that their activities are inhibited by a feeling of anxiety or phobia of walking.

The disturbance of walking which occurs in intermittent claudication is associated with extreme sclerosis of the vessels of the lower leg and absence of pulsation. The inability to walk comes on with a suddenness quite different from that of the paraplegic disturbances.

Treatment.—The functional disturbances of astasia-abasia or stasi-basiphobia usually recover by means of psychotherapy.

For the organic disturbances little can be done. In the early stages, massage and methodical exercises may have some influence in making the contractures less severe. When the disease is advanced there is but little hope of successful treatment, and at the best all one can do is to employ palliative and symptomatic procedures. The paralysis of the sphincters necessitates care in avoiding cystitis; and with bed cases careful nursing is essential to prevent the formation of decubitus.

In most cases of senile paraplegic disturbances there is a general arteriosclerosis and high blood pressure. For the former it is advisable to carry out a course of therapy with potassium iodide, giving small doses through a long period of time. The diet should be simple and with little or no meat. The same general rules for hygiene and therapy as in cerebro-arteriosclerotic cases would be beneficial. Surgical treatment for overcoming the contractures is useless and may even be dangerous.

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CHAPTER XVII

THE APPLICATION OF LEGAL MEASURES IN THEIR REMEDIAL BEARINGS

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INTRODUCTION

The Lunatic a Ward of the Court.—When mental disorder becomes so pronounced as to render the patient incompetent to properly care for himself or for his property, the courts assume charge of both the person and the estate. This is an outgrowth or development of the practice adopted several centuries ago of reposing in the Crown as parens patriæ the duty, as expressed by Lord Erskine, of "caring for those who cannot take care of themselves."

As is stated by Collinson, it is probable that some act in the early part of the reign of Edward I conferred upon the King this jurisdiction over idiots and lunatics. At all events it is certain that the duty of the King in this respect was definitely fixed by the Statute de Prerogativa Regis, passed seventeen Edward II (A.D. 1342). This power was given to the Crown and this responsibility imposed, as a matter of both solemnity and importance, as evidenced by the words of Pope, who refers to it as "a matter affecting the Royal conscience."

Later, by reason of the multiplication of the other duties of the Crown, incident to the increase of population and domain, it became necessary for a delegation of this authority. Accordingly, it was transferred by the Crown to the Chancellor, or the justice sitting in equity. Thus the duty of protecting both the persons and the estates of idiots and lunatics became a part of the special jurisdiction of the equity courts. The insane then passed from the status of wards of the Crown into that of wards of the court, and from that time, when by Royal decree the insane were given into the safekeeping of the Chancellor, the courts have sought jealously to guard the personal liberty and the property rights of this unfortunate class. This relation is an unusual one, and is of far-reaching importance. Ordinarily the courts exist to preserve peace and good order, to protect personal and property rights, and to settle disputes between those having conflicting claims or interests. As regards the insane, however, the courts act as does a father for his children, and seek to protect the wards in every possible manner and under every possible circumstance. The power of the courts in this respect is hedged with but few restrictions, and it may be said that in general it is sufficient to meet every contingency that

may arise. The protection thus extended saves the wards from the harmful consequences of their own misguided acts no less than from the machinations of those who would take advantage of the afflicted. The wards occupy an almost sacred position in being under the wise and powerful shelter of the courts. This paternalism of the courts protects the wards until their death, or until such time when, by the abatement of their maladies, they are deemed competent to resume their places in society.

Following the English practice as just outlined, the duty of caring for the insane and their property rights reposes in the equity courts throughout the United States, except in those jurisdictions in which, by statute, it has been intrusted to probate, orphans', county, common pleas, or other courts. This power of the courts applies alike to the indigent and the non-indigent insane. The protection thus afforded is complete and absolute, and at all times available, for the courts are considered as always open for the purpose of passing such orders as may be necessary in relation to the insane.

The power of the courts is not confined to the persons and estates of adjudged lunatics, but is extended in some states to include the right to restrain the alleged lunatic from exercising control over his property pending the hearing on lunacy proceedings, and the patient may likewise be personally restrained pending such hearing whenever his condition indicates the desirability of such restraint. The custody of the patient in such instances is necessary either for his own welfare or for the safety of others, and the control of his property by the court is a proper means of conserving the estate at a time when it might be recklessly managed.

Forms of Insanity Recognized by Common Law.—The common law recognizes four forms of insanity, viz., lunacy, idiocy, accidental loss of understanding, and deprivation of understanding by voluntary acts of the patient such as drunkenness. Generally the statutes of the several States define these terms, and a common declaration is that the terms "lunatic" and "insane" include all persons deranged or of unsound mind except idiots, and that "lunatic," "insane," and "*non compos mentis*" are synonymous. In the present chapter the terms just mentioned are treated as synonymous, as indeed they are for all practical purposes. In a few States it is provided by statute that "*non compos mentis*" includes idiots. The legal distinctions made in early days between these several terms served no real purpose. Out of the effort to conform to such distinctions there arose much unnecessary confusion and not infrequently did the courts lose sight of the requirements of the patient while giving ear to the discussion of ill-founded technicalities of nomenclature.

By statute, in many States, provision now exists for the commitment of habitual drunkards and for a conservation of the property of such persons by methods closely akin to those employed in lunacy proceedings. In such States it is possible to proceed in respect to habitual drunkards without making suggestion or proof of mental disease, and

wherever this course can be followed it is usually selected in preference to lunacy proceedings. Whether founded upon a logical basis or not, the fact remains that the public looks upon a commitment or adjudication for habitual drunkenness as casting less stigma upon the patient and his family than a commitment or adjudication for mental disease. Habitual drunkenness is treated in the present chapter only as it enters as a causative factor into mental derangement. In very many instances drunkenness, whether habitual, periodic, or occasional, plays an important part in diseases of the brain. It is in this respect only that it is here considered, and for special statutes pertaining to commitment and care of the estates of drunkards, reference must be had to the laws of the particular community in which the patient resides.

Fundamental Principles.—There are certain fundamental principles of law, such as the constitutional provision that no person shall be deprived of his liberty except by due process of law. Another is the section of the Constitution of the United States insuring the right to the writ of habeas corpus. These and other fundamental principles underlie, and are, of course, a part of the judicial code and practice in each of the States of the Union. In the several States, the Legislatures have, by enactment, placed on their own statute books certain laws relating to the custody, restraint, and commitment of the insane, their privileges during incarceration, their rights in applying for discharge, and the care and management of their estates. Insofar as such State laws do not conflict with provisions of United States law, the State laws are valid, and they constitute the legal authority under which the courts of the States act in respect both to alleged lunatics and adjudged lunatics, and to the estates of such persons. Thus the State laws of a community control in a lunacy proceeding brought within the jurisdiction of the State. But these State laws have in practically every instance been the subject of judicial interpretation by the courts of the State, and therefore the proper practice in any community is that which is based upon the statutes of the State as the same have been construed and applied by the highest legal tribunal of that State. This is subject to an exception in those instances in which by reason of diverse citizenship, conflict of jurisdiction, or a Constitutional question, appeal has been taken to the Supreme Court of the United States, and the law has been interpreted by that court.

This chapter treats of the general practice in lunacy matters as the same has developed under the common law, the Constitution, national and State laws, and decisions of the courts. It also includes reference to many features incident to the practice in certain States but which are not applicable in all jurisdictions. From these principles there will be found but few departures in the way of restrictions, but the laws in the several States are undergoing constant change as regards extending the privileges of the insane, and the safeguards thrown around such persons and around their property rights. Hence, in a given case in a particular community, the general and specific principles of the law and the practice as herein outlined must be considered in

connection with the law and the practice as the same prevail in that community. What is the law today may not be the law tomorrow, but the fundamentals, the underlying principles, rarely change. The physician who seeks information as to the legal side of a mental case, will find herein a general guide, which, it is believed, will in many instances answer his purpose; when it does not, it must be supplemented by a reference to the statutes of his State and the decisions of the highest courts of that jurisdiction.

VOLUNTARY COMMITMENT

In many of the States there are provisions of law for voluntary or self-commitment of the insane. The effect of statutes of this nature is to provide a method of securing treatment for mental disorder which does not require a court proceeding. Such legislation is in the interest of any person believing himself to be mentally diseased and approaching a state of insanity, or, as stated by the Illinois statute, of "any person who may be in the early stages of insanity and who may desire the benefit of treatment."

Throughout the nineteenth century, or until very near the close of that period, laws were constantly enacted whereby the admission of patients to hospitals for the insane was surrounded by cumbrous and wholly unnecessary legal restrictions. During the last two decades there has been a change of public sentiment on the subject of admission to such hospitals and the tendency of current legislation is to afford the same facility for securing treatment for mental disease as has long been afforded patients suffering from other ailments. It has been recognized by legislators and by jurists that the much-quoted term "due process of law" does not necessarily imply a compliance with technical and useless forms of procedure. Hence, we have made in recent years a steady and positive advance in legislation based upon an appreciation and recognition of what Blumer calls the "true hospital conception of the insane."

For the physician who has a mental patient willing to go to a hospital for the insane for treatment, perhaps the first step to be taken is to ascertain from the State hospital authorities or the superintendent of a licensed private hospital whether the patient may be admitted under a voluntary commitment statute.

If, under the laws of the jurisdiction, voluntary commitment is possible, this will be found to be by far the most expeditious method of commitment and one involving practically no delay. Furthermore, the adoption of this method whenever possible, is to be encouraged as it brings infinitely less embarrassment upon the patient, his family, and his friends.

As will be readily recognized, voluntary commitment in acute cases is decidedly preferable to any other method. The patient in such a case is relieved from the excitement of an inquisition and the

attending ill effects of such excitement, and can usually be held under the voluntary commitment for the time requisite to bring about a recovery.

Application for Commitment.—Under this form of commitment the patient is required to sign an application for treatment in which he agrees to abide by the rules of the institution, reserving to himself the right to leave the hospital by giving notice in writing to the medical superintendent. This application is generally accompanied by an agreement or guaranty from one of the patient's family assuring to the institution the prompt payment of the fixed charges or the proper expenses for the patient's care and treatment.

The right reserved to the patient in the application for admission whereby he is to be allowed to leave the institution upon giving notice in writing, usually provides that such notice be given at least three days in advance of the leaving.

If the hospital authorities are of opinion that the patient's condition is such that he should remain under treatment, or at all events should not go at large, this interval between the giving of notice and the time when the notice is to be effective, permits the authorities to communicate with the patient's family, in order that proceedings for more formal commitment may be instituted.

In some States, voluntary or self-commitment statutes apply only to State hospitals, but more often they are applicable to State, county, and duly licensed private hospitals for the insane.

Inasmuch as practically all hospitals in which the insane are now treated are under the direction, supervision, or control of public boards of management, lunacy commissions or organized charities, there is no good reason why, under such conditions, voluntary commitment should be restricted to government or State hospitals. If, however, there exist in the United States any private hospitals for the insane which are not subject to certain definite inspection and visitorial powers of public officers, it is questionable whether voluntary patients should be admitted to such institutions.

In cases coming under voluntary or self-commitment statutes, the question arises sometimes as to the legal effect of the agreement signed by the patient. Whether or not this agreement is binding must be determined by the condition of the patient's mind on the subject of his liberty and the restraint which he must necessarily undergo when admitted to the institution. If the opinion of the hospital physicians (and they are usually at such times acting in consultation with the applicant's family physician) is that the patient is fully aware of the effect of the agreement, his signature thereto is binding. This doctrine has been upheld both in this country and in Europe, and the reported cases of hospital patients who have sought release by habeas corpus proceedings fail to show, in the many jurisdictions in which investigation has been made, any cases brought by voluntary patients. Should such a proceeding be brought by a voluntary patient, it is a condition precedent that he give the required notice and bring the action after

the expiration of the time fixed for such notice. Failing to do this, the writ of habeas corpus will usually be denied him under the authorities cited in the *Cyclopedia of Law and Procedure,* holding that if the restraint is voluntary the writ ought not to issue.

If in the case of a voluntary patient it is necessary to further restrain him after demand is made for release, and proceedings instituted by his relatives bring about a more formal commitment, there is *ipso facto* a change of status, the patient passing beyond that of a voluntary patient, and he must thenceforth be regarded as belonging to the class of patients committed under formal legal proceedings.

Property Rights of Voluntary Patients.—If a voluntary patient has property rights which require conservation during his illness, it will be found that in some States the courts can appoint a temporary receiver, in others, however, and these are the greater in number, voluntary commitment confers upon the court no rights respecting the appointment of one to manage property affairs, and it is necessary that there be a legal adjudication of insanity, before any fiduciary can be appointed. The power of a court to appoint a receiver of the estate of a patient against whom formal proceedings have not been instituted, even though such power is sought to be conferred by statute, is decidedly questionable. There should be a record basis for the appointment of a receiver under any circumstance, and in a lunacy case such an appointment ought not to be made unless a proper petition for adjudication is pending, and then only in those jurisdictions in which the power to so appoint in such cases is conferred by statute.

Ordinary and routine duties incident to the management of their estates may be legally performed by voluntary patients, and so it happens that in acute cases it is very often unnecessary to resort to court proceedings to protect an estate. Although patients of this class are not laboring under a legal disability, yet the courts will set aside any unusual and unwarranted agreements made by them. Such patients should be allowed to make only those contracts and business agreements as may be deemed absolutely necessary for the safe and proper management of their affairs.

The contracts and agreements of a patient of this class should be under the careful scrutiny of the physician in charge of the case, and the opinion of the physician as to the patient's competency be first obtained before any further steps are taken.

Discharge.—When a voluntary patient is discharged from a hospital as recovered it is unnecessary that there be any formal proceedings. His legal status has not in any manner been altered by the fact of his residence in the institution. Should the institution fail to release such a patient, upon his giving the required notice, and no legal proceedings for his commitment be pending, release may be asked by writ of habeas corpus. The application of this writ to lunacy cases is considered at length elsewhere in this chapter.

The plan of voluntary commitment is of special advantage in cases in which the mental disorder is of the recurrent type. A patient of

this class may, under the practical working of a voluntary commitment statute, be admitted as often as his condition may require and be discharged with no formality upon the subsiding of each attack.

LEGAL COMMITMENT

The functions of the court in the matter of the indigent insane are usually confined to commitment to a proper institution and consideration of the question of discharge upon proper application. Practically all the States of the Union have State hospitals for the care of such patients. Many of the States have more than one such hospital and in many there are also county hospitals which care for patients of this class. In some of the larger States the care of the insane is under State supervision, direction, and control, the counties paying their proportionate tax to the State; in others the counties maintain their insane in their own hospitals, and a few States having no State hospitals contract for the maintenance of their insane in the State institutions of other commonwealths or in private hospitals. In some of the more populous states there are separate hospitals for insane criminals; in other jurisdictions such patients are cared for in the general hospitals for the insane or in wards connected with a State penitentiary. In every jurisdiction there is a provision for the commitment of the indigent insane to some proper institution, and it is to such institution that the court sends these patients.

Form of Commitment.—The form of the commitment varies to a considerable extent in the different States. In some jurisdictions the judge appoints physicians to make an examination and then hears their testimony, and personally examines the patient, after which, if he is satisfied of the need for restraint and treatment, he signs the order for commitment; in other places the court is assisted by a jury, sometimes of three, sometimes of six, and often of twelve jurors. The patient should be served with notice of the time fixed for the hearing; it has been held that notice served on the day of the hearing is sufficient, and there is also some authority for dispensing with notice when public safety seems so to require. In many jurisdictions notice is a statutory requirement and the better practice is that it always be given.

Under the practice prevailing in a number of the States the court issues a commission to certain persons, usually disinterested physicians and lawyers, or directs the sheriff to summon such persons; the duty of the commission thus appointed or summoned being to conduct an inquiry and report its findings to the court. After the return of the findings of such a commission the court either enters an order of approval or proceeds to conduct a further hearing. Such a commission performs to all practical purposes the functions of a jury, and by reason of the professional knowledge and attainments of the persons selected to serve, is usually able to render a finding in every way superior to the finding of the ordinary jury.

There is in every jurisdiction a county or State officer charged with the duty of instituting proceedings of this nature and bringing the cases before the court for action. It is to this public officer that application should be made for the commitment of an indigent insane patient. The officer may be of the police department, of the organized charities, of the department of health, or an attache of the court; in any case he will have the necessary blanks to be used in instituting the proceeding, and will be prepared, upon the blanks being properly filled out, to take the patient, forcibly if necessary, under powers of temporary restraint. This power of summarily taking the alleged lunatic is absolutely necessary, for reasons of preservation of peace and public order, and in the exercise of such authority police officers universally act in taking into custody persons who are believed to be dangerous to themselves or to other persons. In some jurisdictions it is the practice of police officers to require the swearing-out of a warrant upon a charge of threats or some similar charge before taking the alleged lunatic into custody. The police authorities are justified in taking into custody at any time, any person whose actions on the highways or in a public place indicate that he is dangerous and should not be at large. In such cases the formal proceedings of the jurisdiction in which the restraint is effected are immediately instituted by the proper authorities. The restraint thus imposed, however, is in every jurisdiction limited to a definite period, usually of brief duration, during which time the formal court proceedings must be instituted. Failure to institute proceedings within the time fixed by the statute, or within a reasonable time, may result in the discharge of the alleged lunatic by writ of habeas corpus.

Physician's Examination.—If the attention of the authorities has been drawn to a case by the relatives or friends of the patient acting in coöperation with or under the advice of the patient's physician, it is usual that the latter be required to sign a certificate as to the necessity for the commitment. In such matters, as in practically all of his professional acts, the physician makes himself liable to an action at law if he has not sufficient justification for the step that he takes. A few States have provided by statute that such certificate can only be given by physicians who have qualified as examiners in lunacy, and others require the physicians to have been in practice a prescribed length of time. Certain States of the Union, as well as certain foreign countries, have a provision of law which requires that the physicians conduct separate examinations. This, of course, is to guard against collusion, and to serve the further purpose of insuring at least two complete and thorough examinations. Such an examination should be sufficient to enable the physician to make a positive diagnosis of mental disease, otherwise he should unquestionably refuse to sign the certificate of mental incapacity.

Attention must be called to the fact that occasional cases—and happily they are few in number—have disclosed that the examination to determine mental condition was conducted at a time when the patient was under the influence of liquor or drugs. While in such

condition a patient should not be examined, and information derived from an examination so conducted should certainly never be offered to a court. Some writers have laid stress upon the point that a physician should never purposely administer liquor or a narcotic in order that he may more readily proceed with a mental examination. Aside from being chargeable with a violation of the ethics of his profession, the physician who adopts such a course, and then testifies in court respecting such examination, will usually be publicly reprimanded by the court and his testimony be excluded. It is not necessary that the physician signing such a certificate be an expert in mental disease, but it is the rule of law that he "is under obligation to possess and employ such reasonable skill and diligence as is ordinarily exercised in his profession."

For his protection in cases of doubt a physician should act in consultation and coöperation with one or more other medical men, if possible with those especially qualified as to mental disease; in fact, in most jurisdictions the law requires the certificate of more than one physician. A certificate should not be signed by a medical man who is related either by blood or marriage to the alleged lunatic. A physician who has any business or professional connection with the institution to which it is proposed to send the patient is usually disqualified by law from signing such a certificate; and even if there is no such legal provision, such a physician should not sign a certificate to be used as a basis for seeking a commitment. It is required by law in many States that the certificate accompanying the patient upon admission should contain as complete data as it is possible to obtain relative to past history and family history, as well as to the existing mental disorder.

Establishment of Prima Facie Case.—The object of these formalities is to establish a prima facie case of insanity before the patient is taken into custody. It is a principle of the law that every man is entitled to his liberty, and there is likewise a legal presumption that all men are sane. The man who is alleged to be insane should not be deprived of his liberty except on a reasonable showing of his mental incapacity. On such reasonable showing in the form of a prima facie case, as above suggested, his liberty will, for the time, be withheld. There then rests upon those who have made the *prima facie* case the burden of proving to the satisfaction of the committing power that the patient should be confined. Conditions in many instances will make it impossible to present absolute proof at the inception of proceedings; for instance, there may not have been sufficient opportunity to have the suspected individual examined to the desired extent. But the alleged lunatic must not, in violation of his right of liberty, be taken in charge and held for formal hearing or commitment, except upon evidence of physicians—and also in some states that of laymen—showing reasonable ground for the allegation of insanity.

Formal Adjudication of Insanity.—After the actual taking into custody, the patient has full opportunity to be heard in the manner provided

by the law of his jurisdiction before final action is taken. If at the hearing the patient convinces the court, or the court and jury, of his sanity, he is promptly released and there has been no change of his legal status as a sane man. If the hearing is conducted before a judge without a jury, it is the practice in New York and in some other States for the court, if satisfied that the patient is in need of treatment for mental disorder, to sign an order of commitment to the proper institution. Such an order of commitment is sufficient authority for the continued restraint of the patient but does not constitute a formal adjudication of insanity.

A patient so committed may always be discharged by order of court, and in several States may be discharged by the superintendent of the State hospital without an order of court. In the event of the discharge of a patient who had been so committed, no order declaring restoration to reason is necessary.

If, however, the commitment is made after a formal adjudication of insanity, the patient is from that time presumed under the law to be insane, and in many jurisdictions this presumption dates back to the time of the beginning of the mental disorder as determined by the court and as specified in the verdict of the jury or in the court's order. After the patient has been duly committed to an institution following an adjudication, his discharge can be brought about by a certificate or other record from the hospital, by further action of the court in the original lunacy proceedings, or by habeas corpus. The subject of discharge will be treated in another part of this chapter.

The practice prevailing in a number of the States as above outlined whereby there may be a commitment by the court without a formal adjudication of lunacy is generally followed except in three classes of cases, viz., those in which the patients (*a*) have demanded hearings before a jury; (*b*) have come into conflict with the laws prior to the raising of the question of insanity; or (*c*) have property rights for the protection of which a fiduciary can be appointed only after a formal adjudication. The right to demand a jury hearing is very generally given to those alleged to be insane, and while in those jurisdictions in which this is the practice the authority to commit reposes in the court, an order of commitment cannot be entered until after a jury hearing, if the patient demands such a hearing. As a rule this hearing must be demanded by the patient, or some one in his behalf, at the time the proceeding for commitment is brought to the attention of the court or within a specified period thereafter. The right is lost if demand is not made within such period.

The court is not bound to accept the verdict of the jury and may, as in other cases, set it aside and grant a rehearing. The constitutional and statutory provisions to the effect that in cases involving life and liberty the accused is entitled to trial by jury are not applicable in lunacy proceedings. In the first place, the alleged lunatic is not an "accused," and in the second place the proceeding is not a trial, but is an inquiry.

Commitment of Non-indigent Patients.—As a general rule, more formalities are required in the commitment of non-indigent patients than in the commitment of those who have no income or property. This grows out of the high purpose of the law to jealously guard the liberty and estates of such patients from the conniving of persons who, from improper motives, might seek to secure the possession or control of such estates. And so it happens that in some states in which the indigent may be committed by a judge without the verdict of a jury, the non-indigent can only be committed by judge and jury acting together. It is usual that the assistance of police, health, and charity officials is not extended toward the restraint and confinement of the non-indigent insane, with an exception in the cases of those patients who are dangerous.

Writ de Lunatico Inquirendo.—Often it happens that the non-indigent patient is to be cared for in a private hospital or at his home, and in such a case the usual proceeding is by application to the court by one of the relatives or near friends for a writ *de lunatico inquirendo*.[1] If this petition is supported by affidavits of medical men, the writ usually issues *ex parte*, and is returnable on a day fixed by the court. But the writ will not issue if the court is of opinion that it will work detriment, and it has been held that a showing in a petition of mere weakness of mind or temporary unsoundness is not a sufficient reason for its issuance, unless it appear that it is necessary for the protection of the person or his property, or the public. Simplicity and silliness have likewise been held as insufficient to warrant the issuance of the writ. In a few instances of record, courts have declined to issue the writ in cases of patients having so-called lucid intervals, but this is against the weight of authority for the writ should issue upon a reasonable showing of actual mental impairment. The alleged lunatic must be within the jurisdiction of the court at the time the writ issues.

The courts always give ear to the suggestion of protection of the property of an alleged lunatic, and in many reported cases have appointed receivers *ad litem* to prevent the possible squandering of an estate. If the patient dies during the interval between the issuance of the writ and the return day the proceedings abate.

The writ has sometimes been issued in the cases of minors, but there is doubt as to the propriety of such proceeding, and it is usual that the authority of a guardian appointed because of the ward's minority is sufficient for all purposes until the ward becomes of legal age. Upon reaching legal age, however, the authority of such guardian ceases and if the ward is insane, lunacy proceedings should be promptly instituted.

In cases in which a writ *de lunatico inquirendo* has been issued, it often develops at the hearing that opposition is interposed either by the patient or by reason of factional family differences. In such a situation the physicians who gave affidavits or certificates to be filed

[1] The ancient writ *de idiota inquirendo* was used in cases of idiots but generally this is now merged into the writ *de lunatico inquirendo*.

with the petition must be prepared to testify in support of their opinions. They must remember that the burden of proof is upon the petitioner, and as it is a medical question the petitioner's burden is to be borne by the physicians who advised him. A physician who has had any opportunity of observing or examining the alleged lunatic may, in practically every State, give in evidence his opinion without regard as to whether he is able to qualify as an expert alienist. Such a witness must first testify as to the facts coming under his observation, or the conversation of the alleged lunatic, and thereafter will be permitted to state his opinion; but the opinion of such a physician, if the case is one in which there is a controversy, will doubtless be accorded by the jury less weight than the contrary opinion of a physician who is able to qualify as an expert alienist. Unless the patient is shown to be of unsound mind he cannot, under the law, be deprived either of his freedom or of the management of his property.

The foregoing applies solely to proceedings upon writs *de lunatico inquirendo* and must not be confounded with proceedings which may, under the statutes of some States, be brought for the purpose simply of conserving the estates of those who, by reason of advanced age or mental weakness, are unable to manage their business affairs. Statutes with this latter purpose are in force in several jurisdictions. After the hearing on the writ *de lunatico inquirendo* the court, in theory as well as in practice, will do that which, in the court's judgment, is for the best interests of the patient.

Importance of Formal Commitment to Physician.—In a few of the States provision is made for the admission of pay patients to State and private institutions upon the certificate of one or more physicians and the written application of a relative or friend of the patient. This method, somewhat akin in simplicity to that of self-commitment, is often adopted in cases of patients who have no property rights demanding the appointment of a guardian or committee. In some jurisdictions this form of commitment has been declared as unconstitutional. The weight of legal authority is against such commitment, and the plan can be followed with safety only in those communities in which the courts have clearly sustained the practice. Unless the courts of the particular jurisdiction have upheld such commitments, the physician who assists in the proceedings is liable to be mulcted in damages at the suit of one thus restrained. A patient having a sufficient degree of mentality may legally part with his liberty, under the equitable provisions of a self-commitment law, but the tendency of the courts is to hold that the requirement of "due process of law" is not met in the cases in which physicians, friends, or relatives bring about a commitment without the written consent of the patient, or an order of the proper court.

In those jurisdictions in which patients are admitted to private hospitals solely upon certificates of physicians, relatives or friends, it is the part of wisdom for the proprietors of such institutions to require more formal commitment in the event the patient makes any demand whatever for liberty. This will amount to protection from any charge

of unlawful restraint after such formal commitment, but will not, unless the finding of the court so provide, amount to a judicial determination that mental disorder existed prior to the institution of proceedings. It is the practice, however, for the finding to contain the date from which the patient is believed to have suffered from mental disease, and in cases in which there has been actual incarceration, prior to the institution of lunacy proceedings, this date in the finding should, in protection to the medical men, antedate the filing of the proceedings. In no other class of insane cases are there so many chances of a physician being subjected to suit for damages as in this class of patients, *i. e.*, those who are admitted to an institution, not of their own volition, nor by order of a court of competent jurisdiction, but upon application of physicians, relatives or friends. The sympathies of the physician ought not exceed his reasonable precautions for his personal and professional protection.

Rights of Patients in Institutions.—Patients confined in institutions for the care and treatment of nervous and mental diseases have certain rights conferred upon them by the statutes of the several States. These rights are conferred for the purpose of giving the patients free opportunity to communicate with the world outside the hospital wards. In general the statutes on this subject provide that, under reasonable rules and regulations, patients may see visitors, that they may at any reasonable time have private conference with an attorney-at-law, that they may conduct personal and general correspondence, subject to inspection by hospital physicians, and that they may write to State officials, judges of the courts, and members of State hospital boards, such letters to be forwarded, without first being read by the hospital authorities. In many jurisdictions these rights, as just stated, are conferred by acts of the State Legislatures, in others the Legislatures have granted to the State hospital boards and to lunacy or charities boards the right to make such regulations as may be necessary to preserve for the patient freedom of communication.

As a rule the personal privileges of patients do not include the right to examination or treatment by physicians outside the institution in which they are confined. A physician who is called upon in good faith to treat a patient in an institution with which he is not connected must, as a rule, abide by the judgment of the medical superintendent as to whether or not he can accept the case. If the request is that he examine the patient with a view to making a certificate to be used in applying for the patient's discharge from the hospital, and permission is refused by the hospital authorities, the proper court will usually, upon application, pass an order authorizing such examination. A medical officer of the hospital, or competent nurse, or attendant, may be present at such an examination. The reason for this is that so long as the patient is an inmate of the institution, the responsibility for his safety and the safety of others is upon the institution, and this responsibility is present during the time that the patient is being examined by outside medical men just as positively as at any time. Should the

patient be taken to court in response to a writ of habeas corpus, or for any other purpose, the court may place him temporarily in the custody of the sheriff or other court officer during which time he may be privately examined, if it is desired, and upon a reasonable showing as to the desirability of such private examination, the court will usually pass such an order. During the time the patient is in other custody by the court's order, the hospital authorities are absolved from liability and responsibility for his improper acts.

CUSTODY OF THE ESTATE

Upon an adjudication that one is *non compos mentis*, or if there is an equivalent finding, the court will proceed with the necessary steps incident to a proper protection of the person and the estate. Both the person and the estate, it must be borne in mind, are then under the direct charge and control of the court. The court will often proceed in this matter immediately after the adjudication, but it may be taken up at any subsequent time, and it is usually unnecessary that notice be given the lunatic.

Appointment of Fiduciary.—For facility in discharging its duty in this connection, the court will appoint a suitable person or persons, under bond, or a trust company authorized by law so to act, as guardian, committee, conservator, or trustee, the title of the fiduciary differing in the several localities. In some States separate appointments will be made; for example, a committee will be appointed of the person and a conservator of the estate. The court is sometimes required by statute to hear the near relatives residing within its jurisdiction on the subject of the appointment of a fiduciary, and in Louisiana the court will act in accord with the agreement reached at a meeting of the members of the family of the lunatic. Near relatives, if qualified, are to be preferred to strangers, and unless there be good reason to the contrary, a husband will be appointed to act for an insane wife, and a wife for an insane husband. Here again the court seeks to act for the best interests of the ward, and will make such appointment as it believes will best insure the peace and welfare of the patient.

The court may, and often does, appoint two or more persons to act jointly as fiduciaries, for there is no requirement limiting the appointment to a single individual. If more than one person is appointed and one of the persons appointed dies during the time of his service as committee, the proper practice is at once formally to notify the court and ask for a further order continuing the survivor as sole fiduciary, or appointing a successor to the deceased fiduciary.

The fiduciary appointed, regardless of whether he is serving as to the person, or the estate, or both, is simply the "arm of the court," and all that he does in performance of the trust reposed in him is subject to the review of the court. For acts which do not meet with the court's approval he is likely to be reprimanded, or removed from office, and

for losses incurred through neglect, negligence, incompetence, or fraud, he is liable to punishment or suit for damages. If the fiduciary invest his ward's funds without the court's approval, any gain from such investment belongs to the ward, any loss from such investment falls upon the fiduciary. It follows, therefore, that the fiduciary should take no action of importance, particularly one involving expenditure or the investment of funds, without first submitting the matter to the court. And this applies with equal force to the depositing of the ward's funds in bank. It has been held with great uniformity that if a fiduciary uses the care and diligence of a prudent man in depositing in a bank which is generally believed to be solvent, he will not be held personally responsible for any loss growing out of the bank's failure, but it is far better for the fiduciary to protect himself by securing an order from the court as to the place of making such deposit. The estate must be kept productive, if possible, and in some States the fiduciary is charged with a certain percentage if he does not invest funds at interest. The investments of funds should be in high-grade, dividend-paying securities, or notes secured by first mortgage on real estate. If the estate consists of improved realty the property should be kept in good order so as to insure occupancy at proper rental. Taxes, insurance, and ordinary repairs may be paid for by the fiduciary, without express order of court; for authority to make unusual repairs or improving the property, application should be made to the court.

Obligations of Fiduciary.—The fiduciary is expected to keep the lunatic in as much comfort, as regards lodging, board, and surroundings, as the finances of the estate will permit. The two fundamental obligations upon the fiduciary in caring for a lunatic are, first, to see that the ward gets every comfort, attention, and pleasure in keeping with his station in life and with his desires, and within the bounds of his financial ability, and, second, to endeavor to act for the ward as the ward himself would act were he mentally normal. In providing for the maintenance of the ward and those for whose support he is legally responsible, the fiduciary should seek to keep within the income of the estate, but if this cannot be done the courts will authorize the use of the principal of the estate. In authorizing the use of the principal, the courts will be guided by the requirements of the patient, and will not be influenced by the effect that inroads on the principal will have upon those who may be entitled to the distribution of the ward's estate upon the death of the latter.

In seeking to act for the ward as he himself would act were he mentally normal, the fiduciary will be allowed to expend the funds of the ward for the financial assistance of relatives for the support of whom the ward is legally liable, and also in some instances, of relatives for whose support the ward is under only a moral obligation. Going farther, there have been instances of courts permitting gifts to charities and benevolences, where the wards had been accustomed to make gifts of this nature when personally managing their own estates. If it is found necessary to render financial assistance to adult children of the ward,

sums paid to such children will usually be considered as advancements, to be deducted in the settlement and distribution of the estate made after the ward's death.

The fiduciary, properly to discharge his trust, should frequently visit the ward. The actual, reasonable expenses of such visits are a proper charge against the ward's funds and the fiduciary will be credited with the same. There must be no abuse of privilege in this respect, the visits being made solely for the purpose of a proper performance of the duty of the fiduciary.

Unless the court has expressly directed where the ward shall be kept, the fiduciary may, as necessity arises, change the ward's place of residence or confinement, but should never take the ward beyond the jurisdiction of the court without the court's permission.

If the fiduciary fails to confine the ward, it has been held that he is liable for any damage by the ward, but the better rule is that there is no such liability if the fiduciary had every reason to believe that the ward's going at large would not be attended with danger or productive of damage. Some courts have adhered in their decisions to the principle that the ward should never be confined by the fiduciary unless expressly so directed by the court. This is too stringent; an exact compliance would unnecessarily burden the courts with the hearing of needless petitions and the granting of needless orders. The condition of a patient is, in very many instances, such as to make his incarceration a matter of importance and necessity for the patient himself and for every one else in the community. In such instances it is simply a part of the duty of the fiduciary to see that there is the necessary restraint, and the fiduciary needs no order of court as his authority or his justification. If there is any reasonable doubt, however, the fiduciary, for his own protection, may and should apply to the court for instructions. In this circumstance the fiduciary may in many cases be embarrassed by insufficiency of funds to keep the patient under proper guidance outside an institution. Though the patient's mental condition is such that he might live outside an institution, provided he had proper care and attention, if his estate is insufficient to pay the additional cost of living outside an institution, the committee is justified in continuing the ward's residence in a hospital.

Accountings by Fiduciaries.—Fiduciaries are required to render full accountings to the court, usually at stated periods, and any person having a present or prospective interest in the ward's estate, or anyone acting in the ward's behalf, may question, and have the court pass upon any item of such an account. It is unnecessary to wait until the time of an accounting, however, for such an objection to be raised, for the courts are always open to receive a suggestion or request of this nature if it seems to affect either the welfare of the ward or his estate. If the fiduciary fail to account at the time required by law or when so directed by the court, the court may properly refuse to allow compensation to him for services, and compensation will be denied a fiduciary who is guilty of any manner of neglect in the discharge of his duties.

Compensation of Fiduciary.—For services faithfully rendered, the fiduciary will be allowed compensation from the funds of the ward, the rate of such compensation being fixed by the court. This rate is usually in the discretion of the court, although in some jurisdictions it is regulated by statute. Whether regulated by statute or not, the compensation of a fiduciary in a lunacy case is generally from 3 to 10 per cent. of the funds received by him for the ward. If unusual service is required, the court will reward the fiduciary in a sum commensurate with the value of such service. If the fiduciary is an attorney, he may be allowed additional compensation for any necessary legal service which he may have rendered the ward or his estate.

It has been held that if a fiduciary make disbursements from his own funds for the benefit of the ward, he has no lien for the same upon the ward's estate, neither has he any lien upon the ward's estate for his commission or compensation as fiduciary.

Extent of Fiduciary's Power.—While the fiduciary is clothed with certain power over the ward and his estate, nevertheless this power must be exercised within the jurisdiction of the court appointing the fiduciary, and does not extend beyond such jurisdiction. The rule on this subject as stated in the *Cyclopedia of Law and Procedure* is that: "The appointment of a committee or guardian for an insane person has no extra-territorial force, and gives the appointee no legal status in another State or power over property of the ward situate therein."

Should the ward have property in another jurisdiction, the fiduciary may apply for appointment in such jurisdiction, an appointment of this nature being generally designated as ancillary to the appointment in the original jurisdiction. There are, however, numerous reported cases in which the doctrine has been sustained that a court may surrender the property of a lunatic to a foreign fiduciary—that is, one appointed in another State—as a matter of comity.

After Death of Ward.—Upon the death of the ward the power of the fiduciary ceases, and he should forthwith present to the court his final account. The usual course in such cases is for the court, upon the approval of the final account, to authorize the balance held by the fiduciary to the ward's credit, to be paid to the legal representative of the ward's estate. Securities held by the fiduciary as such, should not after the ward's death be converted by the fiduciary into cash, but should be delivered with the other personal property to the executor or administrator appointed by the court having probate jurisdiction.

While the rule is very clearly defined that a fiduciary has no authority to incur any expense after the death of the ward, nevertheless it is the practice in some jurisdictions to permit the fiduciary to arrange for a suitable funeral for the ward and to pay the expense of the same before closing his account. Such expenses are, of course, a claim upon the ward's estate, and it is a matter of very little consequence whether they are paid by the fiduciary in the lunacy cause or by the executor or administrator in the probate proceeding. Very often by reason of absence of the ward's relatives it is necessary that the committee or

guardian assume the task of arranging for a proper burial, and inasmuch as the duty of fully caring and providing for the ward in his lifetime was imposed by the court upon the fiduciary, it is reasonable to expect that the latter act at the time of the ward's demise unless suitable arrangements are promptly made by relatives. Assuming that the expenses incurred on such an occasion are reasonable, and in keeping with the ward's manner of living and his estate, the actions of the fiduciary in the premises will be ratified by the Probate Court. The further rights and duties of fiduciaries as to contracts made by and on behalf of their wards, as well as the liability of wards growing out of contractural relations, are considered in the next section.

LEGAL CAPACITY OF THE INSANE

It frequently happens that a patient suffering from mental disorder is called upon to perform some act of a legal or quasi-legal nature. It then becomes necessary to decide whether the patient is competent to act in the premises. While any instrument or contract executed or entered into by a patient in such condition is likely to be subjected later to rigid scrutiny and probably to judicial decision, the question of the capacity of the patient must in emergency be decided by the physician in attendance. It is important, therefore, that the physician have a general idea of the trend of the decisions of the courts respecting the legal capacity of this class of patients. It has been said that the criterion is the relation of the patient to the act in question. But it is necessary in order to obtain a full appreciation of this relation to consider the former habits of the patient with respect, if possible, to matters of the same nature. Also the environment, the persons with whom the patient is living, the existing relations between the patient and members of his family and his former intimate associates, may all have important bearing upon the relation of the patient to a particular act called into question. And, as will be later discussed, the particular form of the patient's mental disorder may be of controlling importance in deciding his competency to perform a particular act.

Testamentary Capacity.—The Supreme Court of the United States has said on this subject that "one may be insane to the extent of being dangerous if set at liberty, and yet may have sufficient mental capacity to make a will, to enter into contracts, transact business, and be a witness."

The question of legal capacity arises more often in connection with the execution of a will than in any other civil matter. While the will of one who at the time of the execution of the instrument was an adjudged lunatic will be submitted to more careful examination than that of the will of a patient admittedly suffering from mental disturbance, but not so adjudged, nevertheless the adjudged insane, as well as those of the other class, have certain testamentary capacity.

Testamentary capacity means the power to make *a will*—not the

power to make a particular will which may be in question. This doctrine has been the subject of occasional attack, but has more frequently been upheld by the courts. The patient should have the mental capacity to decide upon the disposition of his estate, and the effort thus imposed requires a general comprehension of the necessary facts which enter into the formation of the expressed wish and intent.

An idiot lacks testamentary capacity.

Whether or not a particular patient had testamentary capacity at the time of the execution of a will, will be determined by the proper court, the decision resting upon expert and lay testimony as to the patient's mental attitude on the subject of the disposition of his estate, whether the disposition as directed by the will was dictated or influenced by other persons, particularly whether the beneficiaries under the will were guilty of exerting influence over the testator, and whether the beneficiaries are the natural objects of the testator's bounty.

Physician's Relations.—The physician in attendance is often asked in advance, and in all cases such advice should be sought, whether the patient is mentally competent to execute a valid will. This question must be decided, and often at short notice, by the physician ascertaining, with care and precision, the terms of the proposed will, and, assuming the then mental state to be fairly normal, to apply to the terms of the proposed will, the test of the questions of the preceding paragraph. If in his preliminary consideration of the questions which will doubtless arise when the will is offered for probate, the physician deems the patient competent to make a last will and testament disposing of his estate, he should permit the will to be drawn and be prepared to defend his judgment if called upon so to do.

Clouston, whose work on Psychiatry has brought him recently the distinction of a Knighthood, in his chapter on the medico-legal and medico-social duties of medical men in relation to mental diseases, outlines a plan to be followed by the medical man who is called upon to advise as to testamentary capacity. After first calling attention to what he considers the great importance of examining the patient alone, or at all events only in the presence of a nurse or a family agent, Clouston proceeds by advising that the physician ascertain: "First, 'Is the patient free from the influence of drink or drugs and in his usual state?' Then, 'Does he know the nature of the act he is to perform, and the effect of the document he is to sign?' The next thing is to find out if he is not influenced in the doing of it or in regard to any of its provisions, by insane delusion, or by an insane, morbidly enfeebled state of mind. Then ascertain if there is infacility of mind from bodily weakness, or any other cause, or undue influence being exercised from without. The next thing is to make the intending testator go over the particulars of the disposition he wishes to be made, without prompting, or suggestion, or leading questions. And he should be made to do this twice with certainly a quarter of an hour's interval between the two statements."

The last will and testament of a mental patient is materially strength-

ened if physicians act as subscribing witnesses, and incorporate above their signatures a statement showing the mental capacity of the testator at the time of the execution of the instrument. The attending physician will do well to go farther in his efforts to protect the will, if he anticipates that there is to be the slightest opposition offered to its probate, by making memoranda of circumstances incident to the patient's condition at the time of the will's execution, and of the names of persons who may be competent to substantiate the views of the physician. Many wills made by this class of patients are never drawn into controversy, but the possibility of attack on such wills is ever present, and every precaution should be taken at the time of the execution of the will to protect the physician under whose advice the instrument is executed, such precaution being of value not only in sustaining the position of the physician in the particular case, but his general professional reputation.

Physician as Beneficiary.—If the physician is named in the will as a beneficiary he cannot act as a subscribing witness. Moreover, the circumstance of the physician being a beneficiary, affords an excellent opportunity for an attack upon the will under an allegation of undue influence. In such a case the physician should insist upon an examination of the patient by other medical men. The courts have required strong proof of mental capacity in a number of reported cases wherein the physician in attendance or the testator's attorney were named as beneficiaries. Intimate personal relations of long standing may prompt a bequest in favor of a family physician, but when such an instance occurs the physician so named must protect himself by enlisting the services of others in his profession.

Very often the witnesses to a will do not know the provisions of the instrument, and there is no necessity for their having such information. In cases, however, in which the testator is believed to have a mental disorder and the physician is called upon to decide as to testamentary capacity, it is necessary that the physician know the contents of the proposed will and he can very properly insist upon examining the document. It must be borne in mind that the affixing of one's signature as a witness to a will is very generally regarded, and quite properly so, as an expression of the belief of the witness that the testator had at the time of the execution of the instrument sufficient mental competency.

It has been held in some States that a person who signs as a witness to a will impliedly certifies to the testamentary capacity of the testator, and while wills have been permitted to stand in which the subscribing witnesses expressed doubt, and even where the subscribing witnesses were of opinion that the testator was incompetent, nevertheless, the better rule is as just suggested.

Instances are of record in which witnesses to wills have testified that the testators were mentally incompetent. Such instances ought to arise but rarely, and then only in cases in which the witnesses had reason to believe the testator competent at the time of the execution of the

will, but in the light of later information and developments have been shaken in such belief.

Physician's Testimony.—Objection may be raised to the testimony of a physician who has witnessed a will, on the ground that he cannot disclose information gained in his professional capacity. Such objection will not lie under the common law rule, as referred to by Fonblanque, which holds that when the ends of justice seem to demand disclosure, a medical witness will be compelled to testify. By statute, however, this rule has been changed in the large majority of the States, and a physician may not testify except, as is usually provided, with the consent of the patient. It has been held in contested will cases that the act of the testator in asking the physician to act as a witness to the will constitutes a waiver of the privilege and renders the physician competent to testify as to testator's mental condition at the time of the execution of the instrument.

Determination of Testamentary Capacity.—The principle was laid down many years ago that the "delusion test," first advocated by Erskine in Hadfield's case (criminal) in 1800, was the proper method of determining the sanity or insanity of a testator. This principle held that if the patient had a delusion on any subject he lacked testamentary capacity, while an absence of delusions rendered him competent to make a last will and testament. This theory, always open to objection as to insufficiency, has, in the light of present day knowledge, been very generally rejected. A patient may be obsessed by varied, fanciful, and nonsensical delusions on many subjects, and with all have a clear and rational idea of the disposition of his estate. And so, on the other hand, a patient may be free from delusions, and yet have a very positive mental derangement sufficient to render him incompetent as a testator. A conspicuous example of such a case is the patient who, by reason of mental weakness, is unable to throw off the influence of those who seek to advise, and whose advice is not in accord with what the patient ought in good conscience to do, and what he would do were he in possession of full mental faculties.

Such mental unsoundness, it has been held, does not of itself destroy testamentary capacity, unless the will in question be the direct offspring of the delusion; and it has also been held that less mental capacity will suffice for making a will than for the transaction of other business matters, provided, always, that the will directs a reasonable and fair distribution of the property in favor of those whom the testator would naturally be expected to name as his beneficiaries. Some courts have stated the rule to be that the making of a will does not require a "high degree of mental capacity." And so the capacity to transact ordinary business affairs should not be the basis of a decision as to whether there is sufficient mental capacity to make a will.

The reported cases contain numerous instances of testators who made valid wills while suffering from melancholia, paranoia, dementia, and many other forms of mental disturbance; and the fact that a person after making several unsuccessful attempts to commit suicide made a

will and shortly thereafter committed suicide has been held insufficient of itself to invalidate the will. A case in which the court went a long way to uphold a will was published some years ago in the New York reports. In this case the testator was committed to a hospital for the insane in 1886 with a diagnosis of general paresis. In 1887 he was taken out of the institution, the following year he married, shortly thereafter made a will, and in 1889 was readmitted to the hospital, where he died in 1890.

The fact that a testator is of advanced age and suffering from disease does not, in the absence of clearly established mental incapacity, affect the validity of his will, and great physical weakness does not render such a patient incompetent to make a will. Nor will the fact that a testator had moral insanity be, of itself, sufficient ground for invalidating a will, nor will evidence of the moderate use of stimulants or narcotics be of controlling importance in arriving at a conclusion as to testamentary capacity.

An adjudication of insanity is not conclusive as to the patient's mental incapacity to make a will, such adjudication only being conclusive of the fact that at the time it was made the patient was without mental capacity along certain lines. And the fact of an adjudged lunatic having a guardian is of itself no bar to his making a will. However, if the testator has been adjudged insane, there is a presumption of mental incapacity, and this presumption must be overcome by competent evidence if objection is raised to the will at the time that it is offered for probate. As pointed out by Schouler in the last edition of his work on Wills, such presumption may be overcome by proof of the mental capacity of the testator on the subject of making a will at the time of the execution of the instrument.

Attention is directed in some decisions to the fact that weight should be given to previously formed intentions of the testator as expressed by him to other persons, the provisions of the will being in keeping with such expressed intentions. It is said in Wharton and Stillé that "In judging of the soundness of a testator's mind he is to be compared with himself and not with others."

The tendency of the courts, although there is a lack of uniformity on the subject, is to permit the will of a person suffering from mental disease to stand as valid, unless there is clear evidence that at the time of its execution the testator was mentally incompetent to make a will. Some States have gone so far as to provide by law that a person who has been adjudged mentally incompetent is incapable of disposing of his property in any manner otherwise than by last will and testament.

There are instances of record in which wills of lunatics have been sustained, codicils thereto being set aside as invalid. If it appear that a testator had sufficient testamentary capacity at the time of making the will and lacked such capacity at the time of making codicils thereto, the will will be admitted and the codicils rejected.

Attention must again be drawn to the fact that the subject of testamentary capacity in keeping with all other questions incident to the

legal status of the insane is governed by the laws and decisions of the particular jurisdiction in which the patient resides or in which his property is located.

To revoke a will requires the same mental capacity as is necessary to make a valid will. And the courts have held that the mutilation or destruction of a valid will by an insane person does not invalidate such will. The sound reason upon which such decisions are based is that to revoke a will requires the certain and positive intent of the testator, and if the testator, sane at the time of making the will, be insane at the time he destroys it, such destruction lacks the necessary sane intent to revoke.

A will made at a time when the testator was sane is not necessarily affected by a subsequent adjudication of lunacy. If, however, such adjudication declares that the mental impairment has existed from a date prior to the date of execution of the will, it will be a question for determination by a jury as to whether the testator had testamentary capacity at the time he executed his will.

In giving testimony as to a testator's mental condition, a witness, whether he be a professional man or a layman, will be permitted to state his opinion, and cannot be required to swear positively as to sanity or insanity.

Physician as Expert.—A physician who qualifies as an expert, may testify at the trial in a contested will case, if he has heard or read all the testimony, and may in his testimony give his opinion as to the testator's mental condition at the time of the execution of the will. The expert may never have made an examination of the testator, and may never have seen him. Such testimony is usually given in answer to a hypothetical question so framed as to cover all the testimony of the witnesses previously examined, and also, it may be, to cover testimony which is to be offered. The evidence of experts given under such circumstances will not necessarily outweigh the other evidence offered, and the relative value of such evidence is left to the determination of the jury. The reason for permitting experts to express opinions is that such opinions are scientific deductions from facts, the full significance of which facts the jury, not having technical training, cannot fully comprehend.

Essentials for Valid Will.—It must be borne in mind that testamentary capacity is a prerequisite to a valid last will and testament, and unless a physician is absolutely sure in his own mind that a patient possesses such capacity, he should refuse to permit a will to be drawn, and if drawn contrary to his advice, he should under no circumstances act as a subscribing witness. The law of the jurisdiction in which the patient resides, or in which his property is located, will make a legal disposition of his property should he die intestate, and unless, in the opinion of the physician, the patient has testamentary capacity, he should be permitted to die intestate, the property then to be disposed of in accordance with the statutes of descent and distribution.

While a will should be drafted by one learned in the law, or submitted to counsel before execution, occasion sometimes compels haste, and it

is found impossible to obtain legal advice. Often in such emergency the attending physician must act as the scrivener, and it is well, therefore, for medical men to have a general idea of the legal requirements of a valid will and of the object sought to be attained by the execution of such an instrument. A very brief definition of a will is that given by Rood in his *Treatise on the Law of Wills:* "A will or testament is a (1) lawful, (2) voluntary, (3) disposition of property, (4) to a competent donee, (5) by anyone competent, (6) to take effect upon the death of the testator unless sooner revoked."

The important essentials of a will are emphasized and enumerated in the definition just quoted. It should be added that the will should name an executor, although want of this will not invalidate, and that the will must be signed by the testator and witnessed by two or three persons (the law in some states requiring three and in some States a less number), and the witnesses should sign their names and add their addresses. Furthermore, it is essential that the testator ask the witnesses to witness his signature and sign their names, the testator specifically informing them that the instrument is his last will and testament; and it is requisite that after such request be made the testator sign in the presence of the witnesses, and that the witnesses sign in the presence of the testator and in the presence of each other.

Occasionally the desire of one who is critically ill, as to the disposition of certain property, may be complied with without the formality of a will, namely, by that which is known in the law as a gift *causa mortis.* This is a voluntary transfer intended as a gift, of a present interest in personal property, accompanied by delivery and acceptance, made by an owner having testamentary capacity, in peril of death and because of such peril. The estate of the donee under such a gift is liable to be divested by the donor revoking the gift, recovering from the peril, surviving the donee, or not leaving sufficient other property to satisfy the claims of creditors and of the surviving spouse.

For the guidance of those who are called upon to prepare or assist in the preparation of a last will and testament at a time when a legal adviser cannot be secured, there is appended a short form of will and attestation clause.[1]

[1] I,....., being of sound mind, hereby make, publish, and declare this as and for my last will and testament, hereby revoking any and all wills by me at any time heretofore made.

I give, devise, and bequeath all the real and personal estate of every description to which I shall be entitled at the time of my decease unto my wife..... absolutely.

I hereby appoint my said wife.....as executrix of this my last will, and ask that she be permitted to serve without bond.

Witness my hand and seal at.....this.....day of....., 19....

..... (SEAL)

Signed and sealed by the above testator as and for his last will and testament, in the presence of us, who at his request and in his presence and in the presence of each other have hereunto subscribed our names as attesting witnesses.

.....Residing at.....

.....Residing at.....

.....Residing at.....

Contracts.—The law looks with disfavor upon contracts entered into by persons of unsound mind. If a contract is entered into by such a person, it is, in the absence of a statute expressly declaring to the contrary, not necessarily void, but is usually held to be voidable at the option of the lunatic or his representatives. It has been held that a contract which is voidable by the lunatic is also voidable by his fiduciary, his executor, or his heirs. And while the lunatic or his representatives may elect to avoid a contract, as just stated, it may be said that the trend of decisions denies to the other party to the agreement the right to avoid it if it is a contract satisfactory to the lunatic and his representatives. This right of the lunatic to avoid a contract differs from the common law rule, referred to by Blackstone and some of the other early writers, that a party would not be heard to stultify himself by pleading his own lunacy in avoidance of a contract.

Insanity subsequent to entering the contractural relation does not avoid a contract.

If a patient suffering from mental disease enters into a contract during such period, he must, in the event of his recovery, elect within a reasonable time, whether or not he desires to abide by the contract. If at the time he entered into the contract the patient was enjoying, what is known in the law as a lucid interval, and can be shown to have had a sufficient understanding of the transaction, there is abundant precedent for the upholding of the contract.

Contracts for Necessaries.—A most important class of contracts to be considered in connection with the contractural rights and obligations of the insane is the class known and distinguished in the language of the law as contracts for necessaries. Under certain restrictions and limitations as hereinafter noted, the courts lean toward the enforcement of contracts for the necessities of life. This applies to necessaries for the patient as well as for those for whose support he is under legal obligation. Such necessaries, both for the patient and his family, must be in keeping with his and their manner of living, and also in proportion to the estate and the income of the patient. It has frequently been held that insane persons are liable on their own contracts for necessaries of reasonable value, but the broad principle is that the insane are liable for necessaries independent of express contract.

It may well be that certain clothing and certain articles of food and diet are not indispensable to a patient's existence, and in fact many other persons may, from force of circumstances, never enjoy similar clothing and food. If, however, a particular patient has been accustomed to the use of such articles, and his estate is sufficient to warrant their purchase, their continued use by him will be considered as necessary to his proper maintenance. The patient who has never enjoyed such things must be held to view the same, not as necessaries, but rather as luxuries. And his contract for luxuries will not be upheld unless a decided improvement in his financial affairs has made it possible for his manner of living to undergo a substantial change. What has just been said as to a patient applies with equal force

to the maintenance of his family and those who have a legal claim upon such patient. If a fiduciary is appointed having charge of the estate, then, of course, arrangements for the care of the ward and his family will be made by such fiduciary; but pending the appointment of a fiduciary, it not infrequently happens that the patient finds himself under the necessity of making purchases and contracts for necessaries, and such contracts will be sustained if, as herein stated, they are in keeping with the manner of living and with the estate and income. In some forms of mental disorder, one of the first outward evidences of the disease are the acts of the patient in making purchases, usually large in quantity, of articles for which he has no possible use or need, and of making contracts for property and for services not at all in keeping with the business or personal requirements of the patient. Contracts of this nature will not be enforced, or will be set aside by the courts upon proper showing of the patient's mental disorder.

In this connection, one of the first duties of the attending physician in a case in which the patient is mentally incapacitated, for example, a paretic, is to use every possible precaution to prevent the patient from engaging in any business transactions. To be sure, while as has been outlined a contract entered into by one who is afterward shown to be a paretic, will not be enforced or may be set aside, it is nevertheless the part of wisdom to prevent the patient from entering into any contractural relation. If the patient insists upon making a contract for a purpose not approved by his family and physician and they have advance knowledge, they should by all means formally protest to the other party to the contract in the hope of forestalling its execution, or for the purpose, at all events, of strengthening the effort which may be made later to have the contract set aside by judicial decision.

One who is called upon to furnish goods, labor, or services to an adjudged lunatic, or to a person who is believed to be of unsound mind, should first endeavor to ascertain whether the request is for that which comes properly under the head of necessaries. If it does not come under this head, the request should be refused, and if honored, it will be at the peril of the person making such compliance. If, however, the investigation indicates that the goods, labor, or services desired may properly be classed as necessaries, the person to whom the request has been made should, before making compliance, make every effort to communicate with the patient's guardian, as it may well be that the guardian has already taken proper steps to supply all needs. And even though the request is for what might properly be determined to be necessaries, the goods, labor or services will not be so regarded if adequate provision has been made by the fiduciary.

There is a class of cases in which the courts have held the contracts of lunatics in connection with the purchase of property as binding. These are cases in which the other party is shown to have acted in the utmost good faith and in ignorance of the impaired mentality of the party with whom he was dealing, and the property has been received and used by the lunatic. Unless such a transaction can be set aside

and the parties placed in *statu quo*, the courts lean very strongly to the rule which holds such contracts as of binding force.

Power of Fiduciary to Make Contracts.—The fiduciary has full power and discretion to contract for the proper requirements of the ward, subject always to the supervision and subsequent ratification of the court. The fiduciary is not only at liberty to apply to the court for a judicial determination as to the propriety of complying with any demand of the ward or his dependents, but it is his duty to do so. In all questions of doubt, application should be made to the court for instructions. This is for the protection of the fiduciary and also because the fiduciary is but the "arm of the court" in such a case, and the care of the patient and his estate must always be under the absolute direction of the court.

If the physician is called upon to advise as to the making of a contract by a mental patient, he should if possible refer the question to a legal adviser; but if legal advice cannot be obtained at the moment, and there appears to be more or less urgency, the physician may be somewhat guided by remembering that while the law guards carefully the rights of the insane and will protect their property to the fullest extent, there are certain conditions, as herein outlined, in which contracts made by such patients will be held as valid and of full force and effect.

In connection with all of the foregoing, however, attention must be called to the fact that certain states have specific statutes declaring as void any contract entered into after an adjudication of lunacy.

Contracts for Life Insurance.—Many legal controversies have arisen growing out of contracts for life insurance. In a considerable number of these cases, the question in dispute has been the mental condition of the insured, either at the time of application and examination, or at the time of death. The concealment of insanity existing at the time of application and examination, or existing prior thereto, amounts to fraud, and upon evidence showing such insanity a policy will be declared void.

Question as to the insured's mental condition at the time of death arises in those cases in which the companies seek to avoid payment by reason of death resulting from the act of the insured.

Some policies of insurance contain an express provision declaring the policy invalid if the insured meets death by his own hand, and others go farther by declaring the policy invalid if death results from "suicide, sane or insane." The decisions in these cases are in conflict with the weight of decisions favoring the insurance companies. In the absence of a provision invalidating the policy for "suicide, sane or insane," the courts have held in numerous instances that the suicide of one who is insane does not invalidate, even though the policy contain a provision against death by the hand of the insured. These decisions rest upon the theory that insanity is a disease and that the taking of his life by the insured is caused by such disease. And this applies equally under accident insurance policies, the courts holding that suicide while insane does not forfeit the policy, the insured not being guilty of misconduct or having a rational intent to end his life.

Under beneficial or sick benefit policies it has been held very generally that insanity is such sickness as to entitle the holder of a policy to benefits.

Marriage Contracts.—The contractural relation established by the marriage of two persons, one of whom is of unsound mind at the time of the marriage ceremony, is rendered by statute either void or voidable.

Evidence showing the continued incarceration in a hospital for the insane for a requisite period is sufficient under some statutes to establish the right of the other party in such proceedings. In the absence of such a record, the insanity may be shown by evidence of persons having personal knowledge of the party alleged to be insane as well as by the acts, conversation, and conduct of such party.

Mere weakness of understanding will not be sufficient to invalidate a marriage.

In a few of the states there are provisions of law to the effect that a person who has been an inmate of a hospital for the insane, and who has been discharged therefrom, cannot enter into a valid marriage within a certain period of time after his release from the hospital, and accordingly it is of importance when considering the proposed marriage of one who has been a mental patient, to ascertain whether under the laws of the State in which it is contemplated that the marriage take place, the former patient is legally competent to enter into the contract.

Some States have statutes making a marriage void *ab initio* if one of the contracting parties was, at the time of the ceremony, an adjudged lunatic, and providing that such a marriage cannot be rendered valid by cohabitation after restoration to sanity. And it has been held very generally that the marriage ceremony and cohabitation, one of the parties being insane, will not constitute a valid marriage nor confer the rights of dower or curtesy.

But if the insanity ceases to exist, the continued living and cohabiting together will, as a rule, either validate the marriage or constitute a good common-law marriage. There are provisions of law in many states which declare as legitimate the children of a marriage annulled by reason of insanity.

Concealment of insanity has been held to be fraud, and fraud is a ground for asking that a marriage be declared void.

The annulment of marriage by reason of insanity applies solely to insanity at the time of the marriage and not subsequent insanity.

It has been held that a man who marries a lunatic, with knowledge of her mental weakness, may be required to provide for her maintenance.

It is important to note that a marriage which seems to come clearly within the scope of a provision of the law declaring marriages under certain conditions as void, is not void in the legal aspect until it has been so held by the decree of a court of competent jurisdiction. It is not for the parties to such a marriage or their relatives or physicians to determine the legality of the union, they may present their petition and their testimony in support thereof, but the marriage remains of

record until set aside by action of the court. The necessity, therefore, of court proceedings in every such case is apparent.

Under the laws of many States, divorce may be obtained for desertion. If in a suit for divorce on this ground it can be shown that the alleged desertion is due to the insanity of the party charged, then the action must fail. If, on the other hand, desertion is shown to have begun while the party was sane, and he thereafter, during the statutory period, became insane, the courts have held this to be a sufficient desertion to sustain an action.

In a suit for divorce on the ground of cruelty or inhuman treatment, it is a sufficient defence to show the insanity of the party against whom the proceeding is brought.

In some states the law prohibits the granting of divorce for any cause where it is shown that the defendant is insane. In contradistinction to this pratice, are the laws of a few States which permit the obtaining of a divorce for subsequent or postnuptial insanity. There are provisions of law in some jurisdictions permitting suits for divorce to be brought by insane persons, the lunatic to act, in such proceedings, through a guardian *ad litem* or through a next friend.

In general it may be said that a marriage contract, one of the parties to which is insane, is controlled by the *lex loci contractus*, and proceedings to set it aside may be brought in the name of the insane contractor or by the other party. From the standpoint of society, the marriage of two parties, one of whom is a defective, is to be deplored, but unless such defective is clearly of unsound mind or has been an inmate of an institution within the period prior to the marriage as specified in the State statute, such a marriage is perfectly legal. There are reasons, chief among them being pregnancy and the birth of children, which render it important that the validity of marriages be sustained whenever possible. It is, therefore, very much preferable to seek to prevent a marriage, if one of the parties is mentally deranged rather than risk the burden at some later period of trying to have it set aside. Often a physician is called upon to advise on the subject of contemplated marriage and though the giving of advice against marriage may work to the embarrassment of the physician, he must embrace every opportunity to discourage an unsafe union. On the other hand, a family history including some insanity, must not be accepted as of controlling importance in advising on the subject of a proposed marriage. As pointed out by Clouston, "A sporadic case of insanity, or of senile breakdown imitating insanity, may occur in almost any family." Cases of this nature do not warrant the physician advising against the marriage of members of families in which they have occurred, and there is no reason in law which will operate against such marriages.

Capacity to Give Testimony. — The mental capacity of a witness called to give testimony in a proceeding at law is often the subject of searching inquiry. If the witness has been, or is at the time he is summoned, a patient in an institution for the care and treatment of mental diseases, objection will undoubtedly be made to the admission of his

testimony; and, similarly, objection is often made to the testimony of one believed to be of unsound mind, although not so adjudged, and never an inmate of a hospital for the insane. The mere fact that one is or has been adjudged insane and committed to an institution is not of itself sufficient ground for excluding the testimony of such a person. Every physician who has had experience with mental patients knows that very many patients of this class have sufficient mental capacity to render them perfectly competent and thoroughly trustworthy witnesses.

By the common law the witness to be capable of testifying must understand the nature of an oath and give a coherent statement of the matter as to which he is examined. An old method of determining the intelligence of a witness was to ask if he knew the nature and sanctity of an oath. Very many insane men know full well the nature and sanctity of an oath and have for the oath a wholesome and intelligent respect. When such is the case, and physicians assert mental competency to testify, the courts will receive the testimony of such persons even though they be at the time adjudged lunatics.

The test to be applied is whether the nature of the mental disorder is such as to influence the patient's mind on the subject in controversy. The patient may, as was pointed out under the subject of testamentary capacity, be afflicted in a noticeable manner with any one of a multitude of forms of mental disorder, such disability, however, having no influence over his capacity to testify accurately as to something apart from his disability. Thus the adjudged lunatic, with a positive diagnosis of paranoia, and with the familiar egocentric attitude of this type, may go on the witness stand and give an absolutely correct account of, for instance, a collision between a street car and an automobile, in neither of which he was riding, and which collision he chanced to observe. The testimony of such a witness is merely automatic, he reduces to words something which he saw with his eyes, and as he was nowise interested, he has brought into his testimony no thoughts of his own. The testimony of any witness to a collision, continuing the use of the same illustration, whether the witness be sane or insane, should be simply a recital of what he actually observed, and the paranoic, as well as the man, who without question is laboring under any one of various other mental derangements, can properly be heard to give a description of what he saw.

This doctrine has been upheld by the Supreme Court of the United States in a case which went to that tribunal from the courts of the District of Columbia, the court holding that "the existence of partial insanity does not unfit individuals so affected for the transaction of business on all subjects, nor from giving a perfectly accurate and lucid statement of what they have seen or heard."

The case in which the Supreme Court used the language just quoted was one of some prominence brought by an army officer for damages for injuries sustained in a fall, such injuries resulting in mental impairment. Objection was made by the defence to the testimony of the

plaintiff, and it was argued that he was, at the time of the trial, mentally incompetent. Had this objection been sustained, the plaintiff manifestly would have been deprived of his own best witness. The plaintiff not only admitted mental impairment, but claimed it as the result of the fall. The Supreme Court of the United States held in this case, in line with former decisions of that tribunal, that competent medical men having testified as to the patient's ability to give his testimony concerning the accident, such testimony was clearly admissible.

Admissibility of Testimony. — The principle as announced by the Supreme Court in the foregoing case was stated in the syllabus in this form: "A person affected with insanity is admissible as a witness, if it appears to the court, upon examining him and competent witnesses, that he has sufficient understanding to apprehend the obligation of an oath and to be capable of giving a correct account of the matters which he has seen or heard in reference to the questions at issue."

Hamilton, in his *System of Legal Medicine*, views with caution the admission of the testimony of insane persons. He says: "As to matters of bare fact there can be no doubt that an insane person is often able to testify intelligently, but it is necessary to ascertain if a delusion or delusions exist, or if the person called entertains insane prejudice. In matters where the slightest question of opinion or the formation of an opinion arises, the testimony of such a person should be accepted with the greatest care, especially in cases where emotional states exist. Some authors hold that a person who has been insane and recovered should be permitted to testify to facts occurring during his insanity, provided the facts are 'objectively demonstrable,' and he knows the nature of an oath, and the court is satisfied with his degree of understanding; but that 'a personal and self-regarding incident occurring during a period of insanity, and testified to by its subject either while still insane or when recovered from that state, should not be treated *per se* as an evidential fact.' On the whole, his testimony should be corroborated."

As a general rule if the subject upon which the lunatic is called upon to give evidence is one in which he has no possible interest, there can be less of an attack made upon his testimony, but if the subject is in any manner connected with him, with his family, with his surroundings, or with his environment, the evidence as to his mental capacity to give accurate testimony must be positive. If a patient is called upon to give testimony in a case against a hospital employee, it may reasonably be argued that his testimony is incompetent; this, however, rests as much upon the prejudice of the patient's viewpoint, if he be confined in an institution, as upon his mental incapacity. In some States the law requires that in actions involving a hospital for the insane the testimony of any patient may be admitted regardless of his mental condition, the weight and value of such testimony to be determined by the court and jury.

If in a controverted matter it is deemed essential to obtain the

testimony of a witness who is confined in a hospital for the insane, the presence of such witness may be secured by a writ of *habeas corpus ad testificandum.*

Capacity to Bring Action at Law.—An action at law or suit in equity may be brought by a lunatic, the law usually requiring that the proceeding be instituted by his fiduciary, or by the next friend, and an action brought by one who subsequently becomes insane may be continued, with the court's consent, by a fiduciary, guardian *ad litem* or next friend. If the action be one sounding in damages and the plaintiff be a person who, despite his mental affliction, has been able to obtain work for which he has received remuneration, the courts have held that his mental infirmity will not preclude his recovering for loss of time from his labor. And, further, it has been held that a person of unsound mind may recover damages for mental suffering resulting from personal injuries.

Capacity to Convey Real Estate.—A conveyance of real estate by one known to be insane is looked upon with great disfavor; in many States the adjudged lunatic is totally incompetent to make such a conveyance; in other jurisdictions by order of court previously had and obtained an insane person may execute a conveyance. In a case in the appellate division of the Supreme Court of New York, reported as late as December, 1912, in which it was sought to set aside a deed of conveyance upon the ground of the mental incapacity of the grantor, and in which it was not seriously denied that the grantor was, when the deed was made, subject to delusions upon certain subjects, the Appellate Court found that upon every other subject not related to these delusions he was, in the view of the court, sane and intelligent. Accordingly the court held that as it did not appear that he was led to make the deed because of his delusions, and there was no clear connection between the delusions and the making of the deed, there was no evidence upon which to invalidate the deed. The fact that of the five appellate judges who sat in this case two dissented from the opinion is an indication of the grave doubt that always exists as to the legality, to say nothing of the propriety, of the making of a deed of conveyance by one who is in any respect mentally incapacitated.

Often it happens that the best interests of the ward's estate require that certain real estate be converted into cash. It may be that this is desirable because an advantageous sale can be effected and from the amount obtained greater income can be derived than from the real estate, or the financial needs of the ward or his dependents may make it imperative that there be such a sale. A sale of such realty can only be made under the direction of the court and subject to the court's ratification. In certain States the law permits such sales to be authorized for any reason satisfactory to the court and such general discretion should be given to the courts. However, the law in this respect is not general, and in some jurisdictions the court's power is limited to the authorization of sales in cases in which it is necessary for the maintenance of the ward that there be a conversion of real estate into cash.

Exemption from Liabilities.—While, as has been observed, there are many acts which may be legally performed by mental patients, there are various duties which may not be imposed upon such patients, many privileges which are denied to them, and certain exemptions from liability which are accorded to them by reason of their impaired mentality.

In time of war, for obvious reasons, the insane are exempt from draft, and at all times they are excused from performing jury duty. If one who is insane has been accepted as a juror, the court may discharge the jury.

The privilege of conducting their own property affairs is, as has been stated, taken from them and likewise there are restrictions upon the marriages of such persons. Should one who has been elected to office become insane, proceedings can be brought to have the office declared vacant. The right to vote is denied to the adjudged insane. If one of the members of a partnership is adjudged to be insane, this will be deemed sufficient to set aside the partnership, but the adjudication in lunacy does not ipso facto operate as a dissolution of partnership; there must be a decree of court.

It has been held that a lunatic cannot commit an act of bankruptcy over the objection of his guardian, but acting under the direction of his guardian he may be adjudged a bankrupt with the express consent of the court.

Statutes of limitation do not run against the insane and this applies to those who are insane, though not so adjudged, as well as to those against whom there has been a formal adjudication of lunacy.

Judgments obtained against a lunatic not properly represented in court are invalid, though judgments obtained in proceedings in which the lunatic was represented by his fiduciary or a guardian *ad litem* have been held to be good. In many jurisdictions, however, it is necessary to first obtain authority from the court before bringing an action against either a lunatic or his estate.

If an insane person is arrested upon civil process, a writ of habeas corpus will issue to bring about his release.

INSANITY AND CRIME

Of great importance are the provisions of the law which grant immunity to the insane, and excuse them from answering for crimes and misdemeanors. Speaking broadly, no act done in a state of insanity can be punished as an offence, and no person who becomes insane after committing an offence can be tried while his insanity continues.

One charged with a crime or misdemeanor will not be excused on the ground of his insanity unless the insanity was the efficient cause of the criminal act.

Criminal Responsibility.—The rule has been laid down that in order to acquit on the ground of insanity at the time of the commission of

the offence, it must be shown that there was an absence of appreciation of the wrongfulness of the act, either in a moral or legal sense.

In Wharton and Stillé the principle is succinctly and correctly expressed in these words: "Insanity which will excuse crime must be not the mere impulse of passion, or idle, frantic humor, but an absolute dispossession of the free, natural agencies of the mind; though it need not be furious nor manifested alike on all subjects."

Mercier, recognized on both sides of the Atlantic as an authority on criminal responsibility, in writing on this subject, says: "Crime may arise out of insanity when the natural consequences of the act are, by reason of insanity, unforeseen or misapprehended. Such defective appreciation of consequences is no excuse for the sane, for every sane person is presumed in law to intend, and therefore to foresee, the natural consequences of his acts. But this presumption may be rebutted in the case of the insane. The idiot who cut off a sleeping man's head, to enjoy his surprise when he should wake, clearly did not apprehend the natural consequences of his act; and persons who are deficient in mind are deficient also in foresight, which is one of the chief uses of mind. They would light a fire beside a corn rick, without foreseeing the natural consequence that the rick would catch fire. They would fire a gun for the pleasure of hearing the noise, without foreseeing the natural consequence that the person at whom the gun happened to be pointed would be injured or killed. They would put poison in food for the purpose of causing discomfort, without foreseeing that the natural consequence is to cause death. Many crimes are committed by persons of defective mind from want of foresight of the natural consequences of their acts; and such want of foresight implies want of intention; and, in cases in which intention is part of the crime, such acts are not criminal."

Insanity as a Defence.—If at the trial of a person charged with a crime or misdemeanor the fact of mental incompetency at the time of the act is properly established, and the jury acquits on the ground of insanity, the court usually at once commits the patient to an institution for the insane for care and treatment, or proceeds with an inquiry for the purpose of determining whether the insanity still continues. It must be borne in mind that the interposition of a defence of insanity requires the production of evidence of the existence of the mental disorder at the precise time of the commission of the offence. Such evidence must be in the form of the testimony of persons who were personally familiar with the conduct of the patient at the time of the wrongful act, and immediately preceding and immediately following such time, and may also be presented by the opinions of medical men, based upon the testimony offered or upon personal examination of the patient, or both.

The introduction of evidence of this nature raises at once not only a doubt as to the sanity of the accused, but also a doubt as to his guilt, for if he were insane at the time of the commission of the offence, he is, of course, entitled to a verdict of "not guilty." Therefore, it has been

held in the Federal Courts and very generally in the courts of the States, that upon the introduction of evidence tending to show the insanity of one charged with crime, the burden of proving sanity is upon the prosecution, and if a reasonable doubt exists, the defendant should be acquitted.

Insanity after Commission of Offence.—If the accused has become insane after the alleged commission of the offence, there can be no trial while the insanity continues, and the usual practice is to have a hearing for the purpose of formally passing upon the mental condition. At such a hearing the defendant has no legal right to demand a jury, unless by specific provision in the particular jurisdiction. The method of conducting the inquiry, unless, as just stated, it is prescribed by statute, rests with the court, and the hearing may be before the court and jury, or before the court without a jury, just as the court may determine. If, as a result of such hearing, it is determined that the accused is insane, further proceedings under the indictment are held in abeyance, and he is committed to an institution, there to be held so long as his condition requires, and should he recover, he is returned to the court to answer the charge and stand trial. Here again, as indeed throughout all the literature of the law, is found striking evidence of the purpose of the law and the practice, that no insane man shall be in any manner imposed upon, but shall, on the other hand, receive all possible protection. Continuing this general form of protection to the insane charged with the commission of offences, is the further provision that one who becomes insane after he is found guilty, shall not be punished for the offence while in such condition. Such a person is sent from the jail or penitentiary to a hospital for the insane. Should he be found to be a malingerer he is returned to the penal institution, but if the insanity is real and not simulated, the patient is kept in the hospital. If he recovers during the period of his penal sentence he is returned to the jail or penitentiary, if his recovery is after the expiration of such sentence it is the practice, in many jurisdictions, to discharge him upon certificate of the medical officer of the hospital. If the conviction was for a capital crime, it is provided by the laws of some of the States that the prisoner can only be discharged by special act of the Legislature.

Insanity and Intoxication.—As a rule, the defence of insanity resulting from voluntary intoxication is not accepted as a sufficient excuse, although it has been held, in the absence of specific statutes on the subject, that if the voluntary intoxication caused so disturbed a mentality as to affect the intent, the deliberation, and the premeditation, it may be accepted in defence.

But insanity, arising from excessive use of liquors or stimulants, and not produced by the recent use of liquors or stimulants, is a good defence. So, also, the courts have held delirium tremens caused by abstinence from use of liquor as a good defence.

Civil Liability of Insane.—While, as has just been pointed out, an insane man will not be punished under the criminal law, he will, never-

theless, be held liable civilly, and his estate may be made to answer in damages for his torts, with this limitation that such accountability is not applicable to torts, in which malice is a necessary ingredient, and that in every instance the recovery must be limited to actual damages. Punitive damages will not be awarded in such an action.

DISCHARGE

Methods of Discharge.—The discharge from custody of persons who have been found to be insane, and the restoration to such persons of the right to manage their estates may be brought about by several methods. The simplest plan of securing such discharge is on certificate of the medical officer of the institution to which a patient has been committed showing either that the person is not insane or has recovered his reason. In some States such a certificate is by law accepted as sufficient evidence upon which the court may pass an order declaring the patient restored to reason. As a rule, however, application for such an order must be made by the patient, relying, as just stated, upon the hospital certificate as his evidence. Further evidence is necessary in some jurisdictions, and this may usually be supplied in the form of affidavits from physicians. It is of the highest importance that patients who have been adjudged insane, and who are subsequently discharged from custody as recovered, obtain an order of court restoring their former status. Property rights may be, and often are, seriously jeopardized by failure to obtain such order. It has been held by many courts that no legal presumption of recovery from adjudged insanity arises from lapse of time, and that the presumption of continuation of insanity after adjudication continues until changed by judicial decree. This has been modified to an extent by decisions holding that chronic insanity, once established, is presumed to continue, but that such presumption does not apply to temporary hallucinations. This distinction is of minor importance as regards obtaining an order of court declaring a restoration to normal mental condition, for if there has been any adjudication whatever of mental incapacity, the record must be cleared by a further order of the court, showing the recovery and restoration to reason. The importance, therefore, of seeking such a decree immediately upon recovery is perfectly obvious.

Medical officers in charge of institutions for the insane are very generally given authority by law to discharge patients who have not recovered to the custody of competent relatives or friends, provided the welfare of the patient and others will not be endangered by such discharge. This power, as well as the right to discharge patients who have recovered, is not applicable to patients who have been charged with crime or committed in connection with any criminal proceeding.

Patients charged with crime or committed in connection with criminal proceedings are held subject to further action of the courts, the hospital authorities being obliged to hold such patients until they may

be returned to the custody of the court or released by the latter's express order.

In some jurisdictions the relatives or friends who take a patient who has not recovered must give bond to protect the patient from becoming a public charge. This is in the interest of the public and also for the welfare of the patient, as an assurance that the latter may have proper support and maintenance. There are provisions of law in some jurisdictions whereby superintendents of hospitals for the insane, when in doubt as to continuing in custody one who has apparently recovered, may apply to the court for a writ of *melius inquirendum*, thus securing, through the operation of this writ, a judicial determination of the question.

If the medical superintendent of a hospital declines to certify to the sanity of a patient seeking discharge, it becomes necessary that the patient or someone in his behalf apply to the court for assistance. If there has been an adjudication of lunacy by the court in the jurisdiction in which the application for discharge is to be prosecuted, it is usual that such application be filed in the same proceeding as that in which the commitment was entered. This takes the form of a petition addressed to the court reciting the former adjudication and commitment and alleging present sanity. In every instance in which it is possible to do so such a petition should be supported by the affidavits of at least two competent physicians. Supporting affidavits of physicians are not absolutely necessary, but if they are not filed, the reason for the absence of such affidavits should be set forth in the petition or in accompanying affidavits. Upon the filing of such petition, if the court is satisfied that there is reasonable ground for its allegations a hearing will be granted.

In some States hearings of this nature are conducted before a court and jury, in others before a court acting without a jury. Unless given the right by specific provision of law, the patient cannot demand a hearing before a jury. Opportunity will be granted both sides for full presentation of all facts bearing upon the petitioner's mental condition. This is in the nature of an inquiry, not a trial, and it is customary to extend the greatest freedom to both sides in offering evidence in order that the court may have all possible light. If the decision of the court is that the patient is still insane he is remanded to the institution, but if sane he is forthwith released.

Proceedings of this nature to secure discharge may also be brought in cases of patients who have been intrusted to the care of guardians or committees and not confined in institutions. If such a patient is successful in an effort thus to obtain his liberty, his guardian or committee must at once file a final accounting, and after the same has been approved by the court, pay over the balance in his hands to his ward. It may be that the fiduciary has, in good faith, opposed the proceeding, believing the ward to be insane. In such event the fiduciary is entitled to include, in his final account, counsel fees and other reasonable expenses incurred by him in resisting the petition. And so, if the petition

be unsuccessful, the counsel who prosecuted it, if he acted in good faith and with reasonable ground for believing it well founded, is entitled to payment for his services to be made by the fiduciary from the ward's funds. But such charges are carefully scrutinized by the courts, and a lunatic will not be allowed to dissipate his estate by payments of improper fees or for services not required.

After discharge, should the ward secure a rule on the fiduciary requiring an accounting, or bring other proceedings to hasten or to compel such accounting, he cannot thereafter attack the proceedings in which the fiduciary was appointed.

The receipt of the ward given to the fiduciary after the approval of the final account is a full and sufficient acquittance and release for the fiduciary, as the ward is then *sui juris*. Should there be a return of mental disorder, the fiduciary possesses no rights by reason of his former authority, and proceedings for restraint and for the appointment of a fiduciary must be instituted *de novo*.

Provision is made in the laws of a number of the States whereby a patient who has been committed to an institution for the insane, and who believes himself entitled to discharge, may address a communication to the court which directed the commitment, whereupon the court will appoint a commission, varying in number, but usually consisting of from one to three persons, at least one of whom is a competent physician, the duty of such commission being to examine the patient at the hospital and to secure from the superintendent of the institution a statement in writing as to the patient's mental condition. The commission in such a case reports to the court, whereupon the court, if satisfied that the patient is entitled to be at liberty, orders his discharge. Where this method is permitted by law, it affords a simple and extremely practical manner of facilitating discharge in the cases of patients who are entitled to such relief.

The Writ of Habeas Corpus.—In the Constitution of the United States, provision is made that "the privilege of the writ of habeas corpus shall not be suspended unless when in cases of rebellion and invasion the public safety may require it." The writ of habeas corpus, which has been defined by Hurd as "That legal process which is employed for the summary vindication of the right of personal liberty when illegally restrained," is frequently sought by persons who have been restrained because of alleged mental disease. Such a patient has a constitutional right to make application for this writ, and the universal practice of the courts is to grant the writ upon proper application. Unfortunately, there is no uniformity as to the showing which must be made by the applicant in order to entitle him to have the writ issued. An examination of the prevailing practice throughout the United States shows a very wide difference in the views of the courts on this subject.

Issuance of the Writ.—In some jurisdictions it has been held that a letter written by a patient to the judge of any court of competent jurisdiction asking for a writ of habeas corpus is sufficient to warrant

the issuance of the writ. In other jurisdictions it is required that a formal petition be filed, and in still others it is necessary that the petitioner file affidavits showing mental soundness, thereby establishing a *prima facie* case. The plan which requires a patient to establish a *prima facie* case before securing a writ of habeas corpus is growing in favor, and there is an increasing tendency of the courts to withhold the writ unless some evidence under oath is submitted to the court as a reason for its issuance.

The writ when issued runs to the superintendent of the institution where the patient is confined, or to such other person as may be depriving the latter of his liberty, and it is required that the person against whom the writ is directed, produce the patient before the court on a certain day and show cause why he is being detained. In criminal cases the writ of habeas corpus is very frequently made returnable forthwith, but in lunacy matters the usual practice is to allow a few days between the issuance and return of the writ, in order to give opportunity for a full and complete return by the respondent.

Hearings upon Habeas Corpus Writs.—Upon the return being made, and the patient being produced in court, the first question considered is whether the authority, under which the patient has been detained, is sufficient in law. Patients who have been sent to institutions under provisions of the law of the jurisdiction are, of course, conceded to have been committed by competent authority. It sometimes happens, however, that the institution has received the patient without there having been a full compliance with what is determined by the statutes of the jurisdiction as "due process of law." And in such cases whether the patient is sane or insane, the court will grant a discharge upon a habeas corpus hearing, unless it clearly appears to the court that the patient is insane and should be restrained, in which event the court will sometimes postpone action in the habeas corpus case until proceedings for legal commitment can be instituted. This privilege, however, will not always be extended, and it has been the expressed opinion of many courts that their only course in such cases can be to order the patient's release. It is incumbent, therefore, upon everyone who restrains an insane person to guard against the possible improper release of the patient by insisting at the time the restraint is imposed, that there be an exact compliance with the requirements of the law of the jurisdiction. Failure to take this precaution not only makes it possible for the patient to demand his release, but subjects the person imposing the restraint to the chances of being sued for damages.

The question has often arisen as to the right of an institution to restrain insane criminals after the time of expiration of the sentence of the criminal court. In very many instances of insane criminals the degree of mental disease is so pronounced that no effort is made to secure their discharge, and in such event, of course, the question does not arise. In numerous instances, in order to guard against the possibility of such a patient securing his discharge upon a showing of illegal detention, the practice has developed of instituting proceedings in lunacy

immediately upon the expiration of the criminal sentence. This question has also arisen in connection with the confinement of the insane of the army and navy, who, under the federal law, are sent to the Government Hospital for the Insane, by order of the Secretary of War and the Secretary of the Navy respectively. While there is no record of such a case having gone to an appellate court, it has been held by trial courts that upon the expiration of the term of enlistment the authority of the Secretary of War and Secretary of the Navy ceases, and if such patients are to be confined beyond the time of their enlistments, proceedings in lunacy should be brought for the purpose of securing proper authority for continued detention.

If the return made to the writ of habeas corpus shows that detention is made pursuant to a commitment given under due process of law, then a hearing is conducted by the judge before whom the writ is returnable. It is not essential that the writ be made returnable before the judge who orders its issuance, although the usual practice is to so provide. And in many States the writ may be issued by a superior court judge in any part of the State, although the better doctrine, as held in numerous instances, is that the writ should be issued, or at least made returnable, in the locality in which the patient is confined.

Hearings upon writs of habeas corpus after proper return has been made are conducted either before a judge or before a judge and jury. This is controlled by the lex loci. Frequently these hearings are conducted before a judge and jury, but the petitioner has no constitutional right in a habeas corpus case to insist upon a jury hearing. It must be emphasized that a proceeding of this nature, at this stage, is a hearing and not a trial.

Physicians' Testimony in Habeas Corpus Hearings.—The courts have held that even though there be statutes which prohibit a physician from violating confidence by disclosing information as to his patients, such prohibition does not prevent the physicians of government or State hospitals for the insane from testifying in support of their returns to writs of habeas corpus. At such a hearing the respondent is under a requirement to show not only the legality of the commitment under which the patient is held, but that the patient is insane, and in order to make proper showing as to the patient's mental condition, it is imperative in many cases that hospital physicians personally take the stand in support of the return. Physicians who are called upon to serve an applicant for a writ of habeas corpus should never lose sight of the fact that there is a growing tendency, and very properly so, to accept the opinion of the hospital physicians of government and State institutions as being entitled to very great weight. Manifestly such physicians have had, aside from their technical training, very many more opportunities of observing the patient than have physicians who have been employed to make one examination, or at best, but occasional examinations, with a view to securing the patient's release. Physicians who accept such employment must realize, therefore, that it is necessary that their testimony cover a wide scope and have firm foundation

in fact, if it is to be seriously considered in opposition to the testimony of hospital physicians. At such a hearing any physician regardless of the amount of his knowledge on the subject of mental disorder, and, in fact, any layman, may testify as to personal observations touching the mental condition of the patient. After the non-expert physician or the layman has testified as to facts and circumstances which have come under his personal observation, it is for the court to decide whether such witness may proceed by giving his opinion as to the patient's mental condition.

Findings of the Court.—The sole question before the court at such a hearing, assuming the commitment to have been under due process of law, is whether the patient is of sound or unsound mind at the time of the hearing. The fact that he was of unsound mind at the time he was placed in confinement, or the fact that he was of unsound mind a short time before the hearing, will not be sufficient to show that he should be further restrained unless there is positive medical evidence showing a continuance of the disability. If the court finds the patient to be of sound mind, an order is made forthwith discharging him from custody, and if a fiduciary of his estate has been appointed, the fiduciary should at once file a final accounting and upon the approval of such accounting, turn over to the ward the balances held to his credit. If after the hearing the patient is held by the court to be of unsound mind, he is remanded to the custody of the officer from whom he sought to obtain his discharge, and in many jurisdictions there are provisions of law to the effect that another writ of habeas corpus shall not be issued until the lapse of a specified period, usually three months. Even in the absence of such a provision of law, the courts are justified in withholding the writ, if it appear that the patient has had a hearing on a writ of habeas corpus within a reasonable time.

There should be facility of commitment in the interest of the patient and of the public; there should likewise be such facility of discharge as may be consistent with the patient having all possible privileges which will not operate to his detriment or to the injury of his fellow-men.

RECOVERY FOR INJURIES TO NERVOUS SYSTEM

It is a familiar principle that the law compensates by allowing damages to an injured person. In arriving at the amount to be allowed, effort is made to ascertain what is necessary to indemnify for the injury, whether it be a personal injury, injury to property, loss of time, or other actual losses. And such compensatory damages go farther and seek to cover suit money and other necessary incidental expenses incurred by the injured party. The rule is laid down in the *Cyclopedia of Law and Procedure* that "A party is entitled to damages for all actual pecuniary loss or personal injury which may directly result from the wrongful act or omission of another and which are the natural result of the act or omission complained of."

Extent of Recovery.—Of course, the extent to which recovery may be had depends upon many questions, each of which must be viewed in the light of the particular case in which recovery is sought. It is essential to show, for example, as indicated in the above rule, that the injury arose as a natural and proximate result of the wrongful act, and this is usually a question to be submitted to the jury.

While a large proportion of the cases in which recovery is sought because of personal injuries are cases in which the injuries are purely physical, there are, on the other hand, a very considerable number in which, by reason of injuries to the nervous system, an attempt is made to recover damages. Cases of this latter class present, as a rule, intricate questions. They involve, among other features, the question of the extent of the injury, with particular reference as to the probability of continued suffering and recurrence, and whether the accident may develop a post-traumatic psychosis. Having this fact in mind, it is important, therefore, that the physician who is called to examine or to treat a patient who has received an injury to the nervous system, give very close attention not only to the injury apparent upon first examination, but to the probable future consequences of such injury.

As a general rule there is a lapse of time, often amounting to several years, between the date of the injury and the date of the trial on legal proceedings growing out of such injury. During this period the patient, who has received a purely physical injury, is very often restored to such an extent that the physician can speak with a high degree of confidence as to the full effect of the injury. And in cases in which the injury is to the nervous system, there may often be instances in which the physician can speak, after this lapse of time, with equal assurance, but in the majority of such cases the probability of continuance, of recurrence, or of the development of a psychosis, is so strong that the physician must proceed with the highest degree of caution in order that he may do full justice to the injured party. It must be borne in mind that although general damages are allowed, only for such suffering and injury as may have appeared up to the time of trial, if it appear in the evidence that there is a likelihood of further suffering, that fact may be taken into consideration in fixing the amount of the award. So, therefore, the person who has received an injury to the nervous system, which according to the evidence will probably cause future suffering, is entitled to have such probability weighed by the jury in determining the amount to which he is entitled.

Standard for Degree of Injury.—The question arises as to the standard by which degrees of physical pain or mental suffering can be judged, and the answer is that the law has no fixed rule for determining the amount of damages to be awarded for the varying degrees of physical pain or mental suffering.

Various scales have been adopted by accident insurance companies as a basis for settlement in the event of injury by accident and these go so far, in some instances, as to differentiate between certain mental disabilities. In some jurisdictions the verdicts in suits for physical

injuries indicate a practice of following a more or less definite plan of uniformity of allowance for similar injuries. No such plan is followed as regards injuries to the nervous system. It has been recognized that in this class of injuries it is utterly futile for a jury to attempt to measure the probable effect upon one person by the experience of another who has suffered the same injury. No one but a trained medical man can speak with any degree of confidence as to the prognosis in a large percentage of the cases of injuries of this nature, and such an opinion is based, of course, upon the condition of the particular patient and the nature and effect of the injury with relation to the specific individual. Bailey, in his *Diseases of the Nervous System*, compares the practice under the German law with that obtaining in the United States, and calls attention to this point of marked difference, viz.: Under the German law every factor, except the extent of the injury, is fixed and constant, and the allowance is diminished or increased according as the injured person gets better or worse, while in the United States, "When the plaintiff gets his money his case is judicially at an end; his disease may become worse, but he is entitled to no further indemnity, or better, without his being required to make any return of the proceeds."

An examination of a large number of reported cases, selected at random from the various States, shows a disposition on the part of juries to be liberal toward those persons who have sustained injuries to the nervous system, and these same cases indicate a reluctance on the part of the courts to set aside as excessive verdicts for comparatively large sums awarded by the juries. For examples of the latter reference may be made in passing to these cases: Partial paralysis of one limb with no probability of improvement, verdict for $16,000 held not excessive; paralysis involving the entire left side, verdict for $15,000 not appealed; injuries affecting the mental capacity of sixteen-year-old boy, such as to prevent him from attending to the ordinary affairs of life, $10,000 verdict held not excessive; concussion of spine causing chronic inflammation of the membranes enveloping the spinal cord, impairment of faculties, with probability of premature death, $30,000 verdict held not excessive; serious injury to spine with probable continuance of great pain, $8000 verdict held not excessive; permanent paralysis of one side, with much pain, plaintiff was a physician earning $2500 per year, $10,175 verdict held not excessive; miscarriage and permanent impairment of nervous system, $5500 verdict held not excessive; injury to spine, could not work more than one-half time, two years after accident, $10,000 verdict held not excessive.

It must not be overlooked in considering the verdicts above enumerated that the earning capacity of the injured party is always given considerable weight by juries, although careful examination reveals that in the apparent desire of the juries and the courts to deal with great fairness toward a person receiving an injury to the nervous system, there is very little disposition to award an unconscionably small amount simply because the unfortunate individual was of one of the lower walks of life with limited earning capacity.

If one who meets with an injury is already diseased, he will not be denied damages resulting from the injury. For instance, one suffering from an hereditary hysterical diathesis which has never manifested itself before an accident and then developed would not be debarred from recovery because of such predisposition. The insane man who sustains an injury through the fault of another is as clearly entitled to recover for his pain and suffering and for the effects of the injury as one who is mentally normal. And the man who had convulsions in childhood from which he had apparently recovered, and who, by reason of an accident, becomes subjected to epileptic seizures, is not deprived of his right to recover, for who can say but what there would never have been a recurrence had the injury not been received.

Physical pain and mental suffering are clearly elements of damage, and when sustained they afford a ground upon which damages may be recovered; but the amount of such damage is to be determined as above stated from the evidence in each particular case. Such being the case it is clear that the rights of the injured party must receive their best protection from the physician who has so carefully observed the extent of the particular injury that he may speak with confidence as to its future probabilities.

The object of the brief consideration of this feature in the present chapter is to impress upon the physician, who is called in such a case, the importance of viewing the case from the standpoint of the hundred and one nervous or mental conditions which may result. To be sure, such a view may not be of great moment as regards present treatment—although as to this medical men are quite competent to judge—but it may be of paramount importance in the later presentation of the case to a court and jury.

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CHAPTER XVIII

NERVOUS AND MENTAL DISORDERS IN THEIR MILITARY RELATIONS

By R. L. RICHARDS, M.D.

IMPORTANCE OF THE SUBJECT IN DIFFERENT COUNTRIES

The care of the mentally diseased and defective is rightly regarded as one of the highest points of development of our altruistic civilization. From the nature of things the military interest in this subject developed long after the civil interest had made great progress. For a long time those with physical defects were simply discarded from the fighting forces and fared as best they could. Gradually the greater efficiency of the fighting forces, when proper sanitary measures preserved the fighting units, demanded attention and now physical disease is regarded as a disgrace to the modern army and navy. The next step is naturally the prevention of mental disease, and to secure this we find established in the different armies and navies what the French have aptly called the "Neuropsychiatric Service." If by this means we can succeed in securing military organizations of men with sound minds as well as sound bodies, we shall have secured the best that is humanly possible. Then an excess of mental diseases will call for as prompt and full an explanation as does now an excess of physical diseases.

Prevalence of Mental Disease.—That from a military standpoint mental diseases are increasing in the different countries is shown by the table (Fig. 50), giving the recorded number of admissions per 1000 in the different countries for a given period.

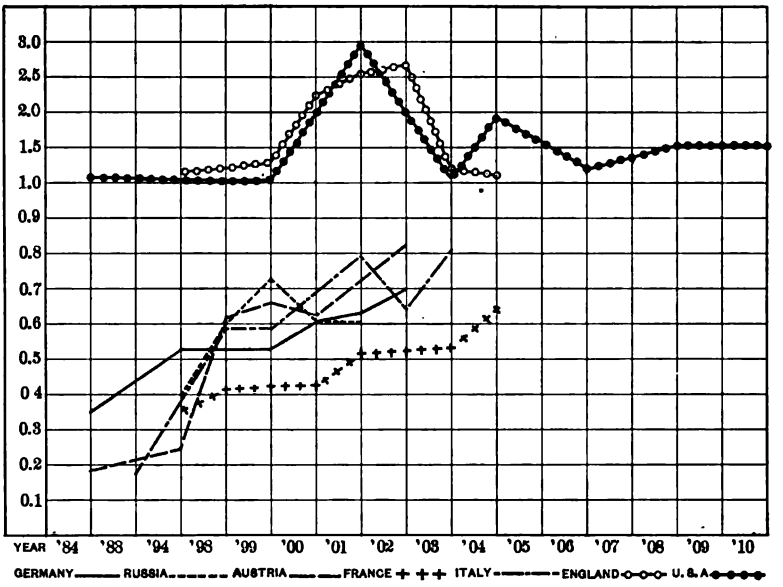
It is also especially noticeable that England and the United States have a larger rate of admission and show a temporary period of increase at the times of the Boer and Spanish-American Wars. The reasons are no doubt as follows:

1. Universal service gives a better average of men.
2. War conditions always cause a great increase of mental diseases.

Both of these points will be discussed later. The point insisted upon here is that all countries show an increase in the amount of mental diseases in their military forces and that England and the United States have more than the other countries. It is evident, therefore, that there is a great need for special study of the causes for this and the adoption of preventive measures which will give as good results as we have had in preventing physical diseases.

In both France and Germany careful comparative studies of the nervous and mental diseases in the army and navy have revealed no essential differences, and the points made in this necessarily limited article will apply to both the army and the navy.

FIG. 50



Management of Mental Disease in Armies.—It seems natural that we should expect to find in military organizations, composed of selected men, of the active period of life, for a special purpose and living under unusual conditions, certain problems and manifestations. Our own country is nearly the last to take up this serious problem. As far back as 1786, Goercke, in Germany, invited the attention of the government to the special problems of the mentally diseased in the army. But it was not until nearly a century later, in 1870, that Koester succeeded in awakening practical interest. Meanwhile, Russia, because of overcrowding of civil asylums and other unsatisfactory conditions, determined to build an asylum for its military insane at St. Petersburg, in connection with the Nicolajewschen Military Hospital. This proved so satisfactory that in 1894 they opened a new building, of one hundred beds, erected at a cost of $500,000. The Medical Chirurgical Military Academy in St. Petersburg has also erected a similar hospital, where Prof. Bechterew has done his famous work. Besides, we find they have erected at least ten other psychiatric hospitals in different parts of the empire. These all have to do with acute recoverable cases, and chronic cases are provided for elsewhere.

Austria has followed the example of Russia in establishing at Tyrnau

a special psychiatric hospital under purely military control. In this hospital they have abolished restraint, with the result that destruction of property has decreased 28 per cent. They employ in agricultural work 40 per cent. of the patients, and the income in 1904 from this source was 18,000 kronen ($3600).

In Germany all doubtful cases (*i. e.*, cases where the diagnosis of mental disease is not clear) are kept in the psychiatric departments of the military hospitals until the diagnosis is established. All cases in which the existence of mental disease is established are sent to civil institutions. According to their sanitary reports, the average time for observation of all cases has been forty-two days. Owing to the fact that asylums are plentiful, this scheme adapts itself to their immediate needs so far as the men are concerned. But Stier claims that officers, and non-commissioned officers and old soldiers, presenting a larger percentage of chronic mental diseases, and the government being obligated to provide especially for them, should be retained in special institutions. Soldiers serving only a short period of required service properly belong to civil asylums. Sommer and Shäfer argue for the special care of all psychotic soldiers by military authorities, as obtains in Russia and Austria. It is noticeable that as the military surgeons learn more of psychiatry, they take more and more care of the mentally sick soldier. Since the mentally diseased are so often in conflict with the military law and are entitled to government compensation for any disability incident to the service, and since military conditions are distinctly different from civil conditions, it is always difficult and often impossible to equitably sever the soldier's relations with the military organization in the first few months of mental disease.

France, Italy, Holland, Belgium, Spain, England, and the United States have followed and are following the German plan of sending all cases of mental disease to civil institutions as soon as the diagnosis is established, providing the patient has not meanwhile recovered, when he is discharged on certificate of disability.

Instruction in Military Psychiatry.—Naturally, all these countries have felt the need of special instruction of military surgeons on the subject of military psychiatry. Naturally, too, the instruction is more complete in proportion to the countries' knowledge of the subject. Where psychiatry is a closed book, except to a few who have given their lives to its study, there it is put aside as one of the things impossible to connect with the medical department of the army.

Roubinovitch, recently in a personal letter to Granjux, explains the Russian method of instructing the military surgeon in psychiatry, as follows:

"At the Military Academy the fourth-year students have theoretical instruction once or twice each week. The fifth-year students frequent psychiatric clinics and assist in the examinations of patients. Special lectures are given during the period preceding examination. Among the twenty-five young surgeons designated for work at the different

clinics of the University of St. Petersburg a certain number are assigned to psychiatric work."

Germany, besides the psychiatric work in the regular course and the state examination, has a special three months' course for military surgeons at the Charité Hospital in Berlin under Prof. Bonhoeffer. In addition, certain ones are assigned to psychiatric clinics for a period of two years. Austria has special instruction in the military hospitals, with departments for mental diseases, at Vienna and Budapest. Further special instruction is given as proves necessary.

Italy assigns each year some young surgeons to the psychiatric clinics for two years.

In France, Granjux, Regis, Rayneau, Simonin, Antheaume, and many others have given special attention to the psychiatric instruction of the military surgeon. Regis has a six months' course in his clinic for naval and army surgeons. The Congress of Alienists and Neurologists has passed resolutions covering necessary changes in the laws, and the government has taken the necessary action. As a result, the military surgeons themselves have done a great deal of special investigation of conditions and are taking more care of the mentally diseased soldiers.

Belgium has a special course of instruction at Hospital de Malines.

Holland has some special instruction at the two asylums in Java.

In England psychiatry is one of the specialties available to military surgeons of a certain grade.

Under the inspiration and direction of General Torney our own army is entering upon a period of instruction for military surgeons at the Government Hospital for the Insane, and a general increase of a knowledge of psychiatric matters among military surgeons. Dr. William A. White has placed all the large resources of the above hospital at their disposal. The many acute cases (there is a yearly admission rate of more than 600) and the special opportunities in the studies of the cerebrospinal fluid, of the histopathology of the cortex, and of the psychological laboratory, make this an exceptional opportunity.

GENERAL CHARACTERISTICS OF PREVALENT MENTAL AND NERVOUS DISORDERS

1. The infinite possible combinations of make-up, heredity and environment in different individuals, together with the chance, stress, and strain, have all rendered the psychiatric problems unusually difficult. The individual variation in physical disease with respect to the toxicity of bacterial growth and resistance to metabolic or external poisons are as nothing compared to the enormous possible variations in mental diseases. In civil life in each mental case we have the study of the reaction of the individual to his environment, which varies in each case, and to the stress and strain, which is never in any two cases the same. In military life, however, we have a fixed environment in regard to which we may study the individual reactions.

2. We have also to do chiefly with the third decade of life. Of 1102 admissions to the Government Hospital for the Insane from the active service in the years 1899 to 1908, 729 were under thirty years of age, and 229 were between thirty and forty years of age. This again lessens the variety of mental diseases with which we have to deal. We know that this is the special period for the beginning of the acute transitory psychoses. Hence the variety of mental diseases is less than in ordinary psychiatric experience.

3. The 1102 cases mentioned above also showed 57 per cent. recoveries as compared with a general average of 34 per cent. recoveries in the Government Hospital for the Insane at Washington. If we select a special group in which alcohol, heat and acute infectious diseases were etiological factors, we find an even higher rate of recovery. It is also true that even in those psychoses with recurrent attacks, the first attacks are frequently milder and recovery is more prompt and complete. Hence our military cases are peculiar in that they offer more hopeful and acute conditions.

4. All psychoses receive a local coloring from the environment in which they arise. Hence it is natural that the excited soldier conveys the order of the "General" and that persecutory ideas of some one being after them are very common. Soukanoff and Chaikevitch claim from their experience, before and during the Russo-Japanese War, that military psychoses are predominantly of a depressive form and distinct enough on this account to be classed by themselves. The following classification is proposed by them:

I. Acute depressive psychoses developing alone or in combination with intoxication (*e. g.*, alcoholic), or on the basis of special neuropathic constitution.

1. Depression, hypochondriacal.
2. Depression with acute mental confusion.
3. Depression with stupor.
4. Depression, paranoic.

II. Chronic depressive psychoses.

1. Dementia præcox.
2. Chronic paranoia.

This classification is on the face of it very superficial, being based largely on more or less transient symptoms and not taking into account the underlying disease process. Besides, it does not consider other diseases, such as paresis, epilepsy, hysterical excitement, etc., which are undoubtedly common in military conditions. However, it does emphasize the fact that a depressive coloring is very common in military psychoses. It would seem probable that the exhaustion of prolonged physical effort, which is so prominent a part of active military life, or the exhaustion of acute toxic diseases, or factors such as heat, might account for the predominating depressive coloring. In the Russo-Japanese War the fear of death was found to be associated with hysterical conditions chiefly and was not apparently the cause of a general depressive coloring of the psychoses.

5. Military life is "la pierre de touche de l'equilibre mental," according to Antheaume. Ball says, "In all the world military life has the place of honor for developing psychoses." It is undoubtedly true that psychopathic conditions, defective make-up, and feeble-mindedness often remain quiescent in civil life and become acutely upset in a few months in military life. It is also very common to find in our cases a distinct history of previous mental disease (13 per cent.), previous suspicious symptoms (15 per cent.), and multiple stigmata of degeneration. These cases were living quietly in civil life and broke down in military life. To a certain extent, military life is a measure of resistance of the individual. If all of this is true of ordinary peace conditions, of how much more importance is it in times of war when the hearts of the strongest are tried and the fate of the country hangs in the balance?

6. The point of view in military psychiatry is necessarily different from that of civil psychiatry. The army is as strong as its weakest member, for it is organized on the basis that each unit is capable of performing all the duties belonging to that unit, and may be called upon at any moment to perform any of those duties. The process of natural adjustment in civil life gradually places the defective in a subordinate position. The defective is therefore not so potentially dangerous in civil life. He is also not constantly employed in handling articles dangerous to himself and others. Therefore, in the first place we are under an additional obligation in military life to care for the mentally diseased at the earliest possible moment.

In the second place, military life is really a contract which terminates at the end of a certain specified period or sooner in the default of fulfilling the terms of the contract. The termination of the military life carries with it the adjustment of any damage sustained by the soldier from the military service and the protection of the goverment against unjust claims. When it is considered that this must be done in the early stages of a mental disease, it is self-evident that not only is the problem most difficult but that the point of view in military psychiatry is very different and more complicated than that in civil life.

SPECIAL CHARACTERISTICS OF PREVALENT MENTAL AND NERVOUS DISORDERS

Imbecility and Mental Defectiveness.—Nervous disorders will be considered chiefly in connection with war conditions, and are practically the same as in civil life. When we come to speak of the mental disorders in their military relations, however, we are at once confronted with the relatively greater importance of mental defectiveness. Under mental defectiveness is meant those congenital defects of whatever sort that are encountered so frequently in the army and are not the end phase of some mental disease. German statistics covering Prussia and Wurtemberg in the years 1870 to 1875 show rejections for mental defectiveness to be 372, and for mental disease to be 111. It is only

recently that the Germans have again made this distinction, and in the reports for the year 1905-06 we find discharged for mental defectiveness 305 and for mental disease 305, or a total of 610. Also in the report aus der Sitzung des Wissenschaftlichen Senats bei der Kaiser Wilhelms-Akademie am 22 Februar, 1908, we find that of 1190 cases under observation as to mental condition in this same year, 615, or 51.7 per cent., were reckoned as congenitally weak-minded and 100, or 8.4 per cent., were recorded as psychopathic constitution and degenerative psychoses. Both Stier and Becker show that these are rapidly eliminated and within six months 75 per cent. have been discharged. How few are left in the army is also shown by the fact that in Awtokratow's list of mental diseases at Harbin during the Russo-Japanese War only 4.3 per cent. were noticed as imbecility in a list of 1310 psychoses of various sorts. Consequently then the defective furnishes not only the largest percentage of those with whom we have to deal, but he is the one to attract attention earliest in his military career. If the defect is of a degree sufficient to escape the preliminary examination, and if he can learn his drill, if, under the testing of military life, he does not develop an acute psychosis, still we are sure to meet him among the prisoners, for he is the most frequent type of military offender. M. Hesnard in a report covering three months' medico-legal work in one portion of the French Navy (viz., neuropsychiatric service at Saint Mandrier) found that of the 25 cases under consideration only 2 were pure psychoses and 23 belonged to the class of defectives.

Special Relations to Military Life.—Shaeffer mentions the following points concerning the relations of the feeble-minded to military life.

1. They are the object of mistreatment at the hands of other soldiers. (This is a prominent phase of the German Army experience, and in a modified degree undoubtedly applies to all armies.)

2. They are repeatedly in conflict with discipline and military law.

3. They are notoriously intolerant of alcohol and when under its influence commit military offences.

4. They are unstable and irritable. Especially are they characterized by unreasonable outbreaks of temper and assaults upon their superiors.

5. They frequently commit suicide and manifest temporary mental upsets. The defective does not appreciate the value of life, and when dissatisfied determines to make an end of himself. He has lagged behind in the evolution of man, and resembles the primitive people who have very little knowledge of an inner or intellectual life, and attribute everything to external causes. The moral and altruistic side is entirely lacking.

E. Schultze, in speaking of mentally defective military prisoners, says that they are disobedient, neglectful, and lazy in spite of frequent punishment. They tire of instruction very early. They admit that they feel incompetent. They lie and exaggerate and are irritable. 50 per cent. were accustomed to the misuse of alcohol; 90 per cent. had been previously punished in civil life; 50 per cent. were guilty in military life of desertion or absence without leave.

The French, with their usual facility of expression, have coined the word "les demi-responsables" to cover the general class of defectives (les degeneres peu touches par la dégénérescence, déséquilibrés et débiles). In dealing with them we realize that they cannot be judged by rule of thumb, but only from a study of all the elements making up their lives and with the skill that will enable one to forecast their future and under what circumstances they will be most useful. The abnormality varies in each case and *pari passu* the responsibility varies also. A study of the case pshychologically from the standpoint of the previous history will reveal the degree of responsibility. The main point is well stated by Prof. Dupré as follows: "That stripped of all unessentials it is the concrete objective fact of whether the psychopath is prejudicial socially to himself or society." This naturally covers the question also of his possible military utility. We know that some belong to the class that the Germans call "hochgradige Beschränktheit," *i. e.*, their limitations are in the higher grades. Some are intelligent, but lack self-control. Some have courage, but lack judgment. Some have industry, but lack honesty.

Georges d'Esparbes has written most interestingly of the defectives in the French Foreign Legion, which is composed of all nationalities:

"The foreign Legion has one vice—alcoholism—and three diseases—malaria, syphilis, and humbuggery (de cafard); 33 per cent. of the 12,000 are affected with Wanderlust. What they call duty is purely a fancy—here eroticism, there revolt, more often desertion and theft. . . . They ought to be tried by officers accustomed to their peculiarities. They do many peculiar and absurd things with no vicious motives.

"The degenerate reacts to alcohol very markedly, *e. g.*, of 67 cases admitted to hospital for mental conditions, 16 were still manifesting alcoholic disturbance and a large number gave an alcoholic history; 7 attempted suicide. The cheap, bad wine of Spain is credited as the cause. These soldiers will sell their arms for drink.

"They are capricious, *e. g.*, 21 wanted to study French for a short time, and then all suddenly stopped. They come from many different social classes. They are not accustomed to work. The most of them have already committed some crime in their own homes. They ought to be in a special asylum by themselves and given work under particular conditions."

Symptoms and Treatment.—While during the past year the number is small of those psychopathic and defective individuals who have become a part of our service and suffered sufficient mental breakdown to be sent to the Letterman General Hospital, still they indicate some important points and are a fair illustration of the average experience. Besides, it seems probable that they represent the more severe stress of the service, because they are drawn from the Philippine and other island territories as well as Alaska and the Pacific Coast. That they represent a comparatively small portion of the whole number

of defectives needs no explanation to those familiar with the subject of the military psychopathic individual.

We have a total of 18 cases classed in this group the past year; 33⅓ per cent. had served less than six months and 50 per cent. less than one year. With careful psychiatric work they would be eliminated much earlier. Only two were over thirty years of age, and 50 per cent. were twenty-five years and less; 61 per cent. gave a history of neuropathic antecedents (55 per cent. similar defects and pyschoses, 30 per cent. alcohol, 11 per cent. epilepsy, and the balance scattering). In 66 per cent. of them we had a record of punishments for absence without leave and desertion (58 per cent.); selling clothing and drunkenness (16 per cent. each), and one assualt; 83 per cent. admitted changing occupation very frequently; 61 per cent. admitted enlisting because they had no work; 83 per cent. gave a history of more or less mental upset before enlisting. Alcohol was an etiological factor in 44 per cent. There were 48 per cent. of excitements, 38 per cent. of confusions, and 14 per cent. of depressions in analyzing the mental manifestations. They averaged 4 stigmata of degeneration to each individual (24 per cent. palate abnormalities, 20 per cent. ear abnormalities, 12 per cent. irregular or projecting teeth, 12 per cent. poor frontal development). The variations in this class of cases are really endless. If the motives and mechanisms of the individual are studied, however, we shall be able to foresee the dangers inherent in the make-up of the individual. We can study the habitual reactions and note those showing a probability of conflict with military conditions. We can study the teachableness, the suggestibility, the logical sense, the ethical tendencies, the control of impulse, etc., etc.—all of which Chavigny calls "la methode biologique," and Dupré "biopsychologie continué." Such a careful study will disclose whether his treatment should be medical, psychological, or social. But in any event the process of education is slow and requires a great deal of time—so much time that from the military standpoint it cannot be considered. In those military countries where universal service is required there are many different forms of military service and such a man may be adapted to one form and not to another. Thus in France he might be treated in any one of the following ways:

1. Discharged on certificate of disability and turned over to the civil authorities.
2. Sent to some special institution for training and education.
3. Returned to another branch of the regular military service.
4. Sent to some auxiliary service.
5. Sent to a company of discipline.
6. Given a sick leave for limited period.
7. Retired on partial pay.

With us, however, there remains only the question of discharging him on certificate of disability, furlough, or of recommending a transfer to another branch of the service or to another climate. The desirability of a convalescent home for such cases seems evident, so that

they may be in as good condition as when they enlisted and the government's obligations be equitably and fully settled, so that the active army may not be burdened with any unfit material. The individual would thus be in better condition and the disabilities reduced to a minimum.

The treatment of the acute mental upsets consists chiefly in removing them from the irritating or impossible environment. That they have become mentally diseased in one environment is no proof that they will not do well in a selected environment. In our own military experience we find these cases frequently clearing up when moved from the provinces to Manila, or on the return voyage from Manila to San Francisco. Frequently they tell me, "I have heard no voices since I left Manila." Such prompt reaction to environment gives hope that with the proper educational measures these cases could be trained to adapt themselves to even uncongenial surroundings. The treatment of the acute symptoms is purely symptomatic and such as would be given under any other circumstances in life.

Dementia Præcox.—Of all the mental abnormalities especially common at the period of military activity it is accepted by all that dementia præcox comes next to that large and varied class of mental diseases among the defectives. While the percentage of cases of dementia præcox in civil life is said to be 15 per cent., in military life it is estimated at 44 per cent. to 47.6 per cent. Willis, in 1672, and Esquirol, in 1838, spoke of it as acquired idiocy. The Germans always distinguished between congenital and acquired feeble-mindedness. It may be engrafted upon an original defect, but it is always characterized by the bizarre symptoms of a new mental condition arising from some incidental cause or circumstance. It is one of the largest contributing factors to the state of terminal dementia. Thus of 104 terminal dementias, Christian found that 56 began before the age of twenty years and 48 began after the age of twenty years, or, in other words, in civil life 54 per cent. were in the years of usual military activity. Ziehen says no case originated in his experience after the age of twenty-five years.

Special Relations to Military Life.—In military experience the acute onset with all of its bizarre manifestations will attract attention and lead to an investigation as a rule. But dementia præcox, with a gradual onset, often escapes observation in our experience. Schultze says that 12 of his 15 cases began this way without periods of excitement. Our records the past year show 28 with gradual and 7 with acute onsets. The man is regarded as reticent, peculiar, and a little stupid—all of which, when not pathological, are speedily removed in the barracks with the community life and the good-natured hazing. The cases of præcox with an obscure origin, however, seem the ones especially liable to unauthorized absences and impulsive attacks of violence. Schultze states that 75 per cent. of his dementia præcox cases among military prisoners had been previously punished, and that 58 per cent. of the military offences were unauthorized absences.

Convalescent or remission cases often escape military observation and a large percentage of the patients with mental disease developing within a few months of enlistment belong to this category. Not infrequently we find that such a man enlisted in New York, crossed the continent, and developed the first acute symptoms on board the transport in the Pacific Ocean or in the Philippine Islands—so far may recruits be transferred within four to six months of enlistment. Of the 35 cases of præcox at the Letterman General Hospital the past year, 13 gave a history of mental upset prior to enlistment, 11 were admitted to hospital in less than six months, 16 within one year, and 22 within two years of enlistment.

Repetition of the same military offence and motiveless offences have been noted so often in these cases that it is universally recommended that such patients be carefully examined by a psychiatrist. One case with twenty-one offences, and one with twenty offences have been reported in Germany.

It has always attracted attention that the absurd answers, the peculiar stupid conduct, the silly negativism, perseveration, etc., of these cases would suggest simulation. Thus one of my cases, a prisoner, always tried in a stupid manner to slip through the door, claimed that he did not know who he was, where he was, or had been, and suddenly announced that he was a woman. Besides this attitude and mental defectiveness, other acute mental symptoms were lacking. Later it developed that he really was puzzled as to his indentity and as to the inertia of his mind. Hence he did not know who or where he was, and he might be a woman. Later he cut another patient's throat in an impulsive mood and could offer no explanation. Later still he made two unsuccessful attempts to hang himself. All the time the motive for feigning was lacking because his sentence had almost expired.

Etiology.—Military experience is more that of the psychiatric clinic and dementia præcox cases in their earliest manifestations are more varied than after the disease is well established. Hence the military surgeon must be prepared not so much for the text-book pictures or the classical advanced cases, but for the præcox in the making, colored by military life, by conflicts with military law, and especially by alcoholic excesses. Manhattan State Hospital reports credit alcohol with some etiological influence in 6.6 per cent. of these cases. Kraepelin, in 1907, said that 42 per cent. of his cases were drinkers. L. L. Smith reported 35.6 per cent. with histories of alcoholic excesses. Our 35 cases in 1911 show 40 per cent., with a prominent alcoholic factor. During the same year I have seen cases with the history of alcoholism and presenting the typical pictures of an alcoholic psychosis, all of which subsequently presented the usual picture of dementia præcox. One of these, in a very interesting manner, finally described the basic psychosis with the feeling of change of personality, the unpleasant bodily sensations that caused him to think Christ was taking possession of him in a second incarnation, and the frequent

indulgence in alcohol to escape this sensation, leading to periods of active typical alcoholic hallucinosis, and two suicidal attempts.

A careful study of these cases shows the atypical features of an apparently alcoholic psychosis and the basic psychosis finally stands out clearly. Since 30 of the 35 cases mentioned were less than thirty years of age and 25 of these were twenty-five years or less of age, it would not seem probable that we should have a dementia following alcohol in such young cases. The alcoholic heredity was especially noticeable in our cases. Thus 17, or 48.5 per cent., had a distinct alcoholic heredity. Careful statistics in Switzerland have shown that in those sections where the wedding feast is associated almost uniformly with drunkenness, that the first born within a year of these families have shown a very high percentage of mental defectiveness and mental disease. This and other neuropathic tendencies were unearthed by careful and patient questioning in 60 per cent. of our cases. (Ziehen in his narrower classification finds 80 per cent. with hereditary taint.) Two with a family history of cancer and two with a history of tuberculosis were also noted.

Only 5 of the 35 had had, in any sense, a previous stable occupation, and only 3 had reached the high school and only 11 had attended school after the age of fourteen years.

28 were classed as hebephrenic, 2 as katatonic and 5 as paranoid dementia præcox.

Only 1 case did not show stigmata of degeneration and 122 different stigmatas were noted, making an average of about 4 to each one showing stigmata. 33 palate anomalies, 25 ear anomalies, 16 cases of teeth defects, and 19 cases of defective frontal cranial development were the chief stigmata. 7 had a prematurely old or a prematurely young appearance, and there were 3 cases of hypospadias.

While the number of cases is small, it is probably a fair representation of a year's work in the psychiatric department of the Letterman General Hospital, and corresponds accurately in results with the reports of Bennecke in Germany and Kagi in France. If our prophylactic measures are to be successful in the unusually difficult circumstances of the American military service, it will be from the clearest conception of the general types with which we have to deal. We have few, if any, of the records found in the elaborate governmental organizations elsewhere. The problem is practically, given a man of whose previous life we know only what he tells us, how are we going to decide the form of mental disease from which he is suffering?

Whether one takes the psychological view of the etiology of dementia præcox with its make-up, life habits, mechanisms, etc., or the toxic view with its endogenous toxins associated chiefly with sexual organs, or its exogenous toxins, the result of exhaustion or stress or alcohol or acute infectious disease, or heat or what-not—whether one takes either theory or combines the two, as seems more reasonable, it is undoubtedly true that the etiological factors or setting are of the greatest interest

to military surgeons, who must decide whether the disease is incident to and developed in the service.

Viewed from the military standpoint, Kagi classifies the etiological factors in dementia præcox as follows:

I. The predisposing make-up is necessary.

II. The exciting causes are physical or moral and are like intoxications in their action. There is defective elimination and evident sexual disturbance.

1. PHYSICAL CAUSES:

(*a*) *Fatigue.* He considers this the most important in military life. He considers it an autotoxic and eliminative process. Modern warfare is making greater and greater demands upon the endurance of its military units. Saporito supports the importance of fatigue and notes that Grilli, after twenty-one years' experience, says that the carabinieri, with their greater exertion, and hence exhaustion, show a proportion of psychotics three or four times more than the rest of the Italian army.

(*b*) *Privations.* They are always part of the experiences of war, which is the reason for the existence of an army. The various privations naturally suggest themselves, such as lack of food, water, sleep, etc.

(*c*) *Bad hygienic conditions* in field work, in colonies, and in war times. The very fact of the elaborate precautions considered necessary show the greater danger in this direction.

(*d*) *Atmospheric Variations.* Heat, cold, wind, rain.

(*e*) *Alcoholism.*

(*f*) *Acute Infectious Diseases.* Typhoid fever, malaria, dysentery, and the acute phenomena of insolation.

2. MORAL CAUSES:

(*a*) *Transplantation* into an entirely new environment.

(*b*) *Nostalgia.*

(*c*) *Violent Emotional Changes.* Those from the country, and the less educated, adapt themselves poorly to changes and suffer severe emotional disturbances. The excitement of battle or even of maneuvers, patriotic enthusiasm, vigorous discipline, the uncertainty of movements, and thoughts of the family—all of these contribute emotional strain. In the Franco-Prussian War, Lunier observed 1189 cases of mental disease from July, 1870, to December 31, 1871, and he noted politico-social causes in each. He considered 588 to be etiologically traceable to military life.

Symptoms.—While there is sufficient similarity to justify maintaining the large group of dementia præcox, and although the line of separation is not always clear, still it is well to bear in mind certain marked differences. The katatonic shows most of toxic symptoms, and in our experience with military cases is younger than the paranoid form (average age of katatonics, twenty-five years, and paranoid forms, twenty-nine years). The thyroid involvement, the acute stupors, the better prognosis suggest toxic causes. The hebephrenic shows more constantly the defective make-up. The paranoid is more accessible to psychological investigation and the establishment of psychical mechanisms.

Certain physical signs have been repeatedly noted and are of special interest to the military surgeon. Masselon noted in 50 cases that pupils were unequal in 37 per cent., showed deformity in 41 per cent., were dilated in 53 per cent., and reacted unsatisfactorily in 78 per cent., that patellar and Achilles reflexes were exaggerated in 73 per cent. and 70 per cent., that plantar and cremasteric reflexes were absent in 50 per cent. and 47 per cent. In this connection Weiler, from Kraepelin's clinic, states that increase of tendon reflexes is common and that the absence of the psychic reflex was noted in cases with bad prognosis and clearest diagnosis. He warns against placing too much stress on single so-called katatonic symptoms.

Diagnosis.—Our diagnosis then will depend upon a careful study of the case and weighing of all the evidence. While a certain setting and certain signs and symptoms may serve to indicate the way, and may hence be of special value to the military surgeon, who must always act quickly on short observation, still the judicial attitude of mind must always be maintained, and each newly discovered piece of evidence given its full and proper value. In the prodromal or early stage one will have more often to differentiate this condition from neurasthenia, hysteria, depressive states (especially in military cases), incipient paresis, mental defectives, and degenerative psychoses. In the acute period of onset one will have more often to differentiate manic states, psychoneuroses, infectious exhaustive psychoses, epileptic psychoses, and excited paretics. It must not be forgotten that convulsive attacks are not uncommon in the early stage of dementia præcox. In my own experience these have seemed to be of an hysterical character. Urstein observed among 180 male præcox cases 12 with convulsive attacks. Others have reported such typical epileptiform convulsions that the case was regarded as epilepsy until the dementia præcox was well established. Ziehen is inclined to place these cases nearly all under dementia epileptica.

The degree of intellectual deterioration varies greatly, and is made more difficult by the indifference or negativism of the patients. Testing of school knowledge and general information will often be misleading. To show the higher mental defects, Ziehen recommends especially the Ebbinghause test of filling in omitted words or syllables in short sentences, the differentiation between two similar objects or ideas, and the reproduction of previously related short stories. When they show defects and the powers of observation are still intact, he thinks this speaks especially for dementia præcox and not other defect psychoses. (Acute confused states are, of course, not meant.) In persons with similar educational facilities he found that even in the early stages the Ebbinghause test failed in 90 per cent. of the dementia præcox cases and in only 50 per cent. of the paresis cases.

Treatment.—Treatment, from a military standpoint, has mainly to do with an early recognition of the case and its elimination from the active ranks. Hence we have dwelt as extensively as possible on the points leading to early recognition in military conditions.

Headache, constipation, reduction in bodily weight, are all common early symptoms and are best treated by eliminative and hydrotherapeutic measures with as much judicious food as possible. Patience in spoon-feeding and the repeated positive statement that after a reasonable delay the unpleasant process of sound feeding will be necessary have so far in military experience not failed me. The community feeling of soldiers, the serving of food in the usual manner, and the military regard for those in authority are all factors no doubt.

Hospital treatment is necessary from the beginning because of the danger of suicide and impulsive assaults. 20 per cent. of our cases were suicidal and 29 per cent. were assaultive.

Carefully planned occupation with frequent rests is recommended and has proved very successful. Excited states require continuous hot baths or wet packs, with occasional hypnotics. Stuporous conditions require special care as to nourishment. "Setting-up" exercises and drills have proved profitable and possible as routine measures in my experience in nearly all cases.

Paresis.—Special Relations to Military Life.—Hitherto we have been dealing with mental diseases found chiefly among the enlisted men. If they may be called the most distinctive mental diseases of enlisted men, paresis may be called the most distinctive mental disease of officers. All who have studied this subject have agreed on this point. The French estimate that paresis cases are 7 per cent. of all their military cases. The Germans estimate is 6.6 per cent. In our own army, at the Government Hospital for the Insane, of 490 cases of mental diseases among officers and enlisted men, 36, or 7 per cent., were paresis. During the Russo-Japanese War, in the Russian Psychiatric Hospital at Harbin, the percentage of paresis was 5.6 per cent. among the cases developing at the front. Shaikewicz says that paresis was noted especially among the officers and non-commissioned officers, and that it was undoubtedly hastened in its development by war conditions. Steida says that while ordinarily we find paresis developing twelve to twenty years after the primary sore of syphilis, in these cases it developed in five to ten years after the primary sore. Some of the cases progressed with unusual rapidity. It was also noticed that among soldiers from the front, under treatment, evidences of syphilis were present in 20 per cent., while among the other soldiers under treatment, evidences of syphilis were present in 1.6 per cent. Undoubtedly the old syphilitic is especially liable to break down under war conditions.

The percentage of paresis cases among officers alone is variously estimated from 50 per cent. in the German army (Stier) to 58.9 per cent. in the Austrian army (Drastich). Since paresis is a disease of more advanced life, it is but natural that the percentage of paresis among officers, non-commissioned officers, and older soldiers should be higher than among the whole military body, where the average age is, as we have seen, well below thirty years. Hence the above figures do not mean a greater prevalence of syphilis among those classes, but that we have no means of knowing how many of the others develop

paresis. If anything it shows that these "soldiers by calling" have a more stable mental make-up, since they succumb chiefly to an exogenous toxin. Besides, although 95 per cent. or more of the paretics have a positive Wassermann in the cerebrospinal fluid, we do know that they form, after all, but a small percentage of the large army of syphilitics and that something besides syphilis is necessary. Ziehen says the syphilitic is thirty times more liable to paresis than the non-syphilitic. Exhaustion from high-tension living and chronic toxic conditions have always been mentioned. Among 49 cases of psychoses associated with sunstroke in India, Hyslop reports 14 cases of general paralysis. Skae, among 16 cases, 7, and Frost, among 37 cases, 13; both mention the finding of dementia following sunstroke. Cramer in Germany and Antheaume and Mignot in France have published cases with autopsy and microscopic examination to confirm this sequence. Steinhausen mentions 15 cases of postcaloric dementia, 10 of which were very marked. Granjux and Nattau-Larrier report that the most frequent form of mental disturbance associated with trypanosomiasis is an euphoric condition resembling general paralysis. While personally I have yet to see the report of a case of paresis with indubitable microscopic findings not associated with a positive Wassermann, still I am equally sure that the additional factor is not fully understood, and we cannot deny the possibility of a mental condition very similar from a mental standpoint and arising from other causes. The physical signs are also notoriously fewer in those non-syphilitic cases. This point in military experience cannot be emphasized too much where the question of incidence to the service is of such great importance in reference to pensioning and retired pay.

Symptoms.—The leading features of this mental disease were well exemplified in our cases the past year. They formed 7.5 per cent. of the total number. They averaged forty years of age, and Ziehen says 80 per cent. of all cases are in the fourth or fifth decade of life. They averaged ten and a half years' service, which would indicate that the military life was their calling. Only one had any serious hereditary defect. Stigmata of degeneration were infrequent, averaging only two for each case. 66 per cent. had had good schooling, considering their opportunities. Physical signs were frequent in each case. Only one showed normal light reaction. Ziehen says the light reaction is retained in only 20 per cent. of the cases. Patellar reflex was absent in one case and normal or exaggerated in five. The speech defect was slight in four cases. Other physical signs were present in the usual proportions. Memory defects existed in all the cases. In four the onset was with excitement. One began with a character change as the most marked feature. In only two were the transfer diagnoses correct. One, beginning as a quiet dementia, was diagnosticated paralysis agitans, because of a marked tremor. One was excited and euphoric and was called a manic-depressive psychosis. One, with an obscure onset, was diagnosticated as a neurasthenic. The other one was first observed in this hospital. The physical signs should have lead to a correct diagnosis in

each of these cases. That physical signs are rarely missed is shown by the experience of the Kraepelin clinic, where among 263-cases in two years they found the following percentages of physical signs:

1. Speech disturbances in 88 per cent.
2. Writing disturbances in 73 per cent.
3. Distinct Argyll-Robertson pupil in 70 per cent.
4. Patellar reflexes were absent in 17 per cent., exaggerated in 40 per cent., and unequal in 6 per cent.
5. Hypalgesia in 32 per cent.

The Wassermann reaction was positive in the blood serum in all but one of our cases, and in that there was a probable interference from self-medication. Unfortunately we were unable to secure a test of the cerebrospinal fluid.

Treatment.—In military experience, treatment consists chiefly in transferring the case with the least delay to an institution. Our experience so far with salvarsan has proved ineffective, and the diagnosis once established the prognosis is most unfavorable. If a remission is possible it is more probable with institutional care. Anyone who knows our Government Hospital for the Insane knows how much happier and better the patients are there. While in no class of cases is home treatment more difficult or more humiliating than in the paretics, with their absolute disregard for all the conventionalities of life. In spite of the fact that these cases have almost all a syphilitic history, still they are "soldiers by calling," and deserve treatment for the few years they have to live. So far all have been transferred to the Government Hospital for the Insane at Washington.

Alcoholic Mental Conditions.—Acute Alcoholic Mental Conditions.—The military importance of acute alcoholic conditions is very much greater than their importance in civil life. The necessity for maintaining respect for authority and securing constant obedience are an essential part of military life, while in civil life defects in these regards are treated comparatively lightly and the punishment by civil law is slight. The motor excitements of acute alcoholism are common and lead to such offences.

The usual results of alcoholic excess are known in a general way by everybody. The early apparent increase of psychomotor activity is, however, associated with real defects in the higher intellectual faculties, the finer more exact sense perceptions, and especially the ability for cool consideration, judgment, and action. All of this has been worked out with elaborate technique by Kraepelin and others. Besides this ordinary disturbance of the intellectual function, we have all the pathological forms of acute alcoholism with their motor excitement, assaultive tendencies, and subsequent amnesia. If the civil offences usually associated with the mental disturbances of acute alcoholism were as grave as the military offences the subject would have received more general study in civil life.

Relations of Alcohol to Military Effectiveness.—Besides the question of military offences committed under the influence of acute alcoholism,

we have the practical experiments, made in times of war, with the use of small amounts of alcohol daily. In the Army of the Potomac, because of the unusual exposures to wet and cold, 150 grams of whisky per man per day were issued, and after four weeks' trial the idea was abandoned because the men did better without than with the alcohol. The same result was noted in Napoleon's Russian campaign, in the English-Egyptian campaign under Lord Wolseley in 1882, and in the Dutch campaigns in Java. The regular use of small amounts of alcohol does not increase the effectiveness of soldiers.

The Swedish experiments, in regard to the effect of small quantities of alcohol on the precision, rapidity, and endurance of rifle firing, have attracted a great deal of attention in Europe and show the damaging effects in a very clear manner.

Three corporals and three enlisted men took part in the test. They were not total abstainers, but during this period they drank only when ordered to do so. In the precision tests each man shot twice lying down, twice kneeling and once standing. On the previous evening, and twenty to thirty minutes before the test, each man was given 34 to 44 grams of alcohol, when the effect of alcohol was to be tested. The points made by each man were recorded and the results were as follows:

In six such series of shots without alcohol the corporals averaged 19.11 points; the enlisted men averaged 12.99 points.

In seven such series with alcohol the corporals averaged 17.95 points; the enlisted men averaged 11.34 points.

In six such series, without alcohol afterward, the corporals averaged 19.22 points; the enlisted men averaged 15.24 points.

In rapid fire as many shots as possible were fired in one-half minute. The total misses were counted and the results were as follows:

1. Average misses per man, without alcohol, 7.
2. Average misses per man, with alcohol, 27.
3. Average misses per man, without alcohol, 4.6.

In the endurance test each man fired 50 shots in rapid succession; thirty minutes previously each man was given $\frac{2}{8}$ liter of 4 per cent. alcohol, when the effect of the alcohol was to be tested. The results were as follows:

Two marksmen, with 200 shots without beer, made 359.5 points.

Two marksmen, with 200 shots with beer, made 277.5 points.

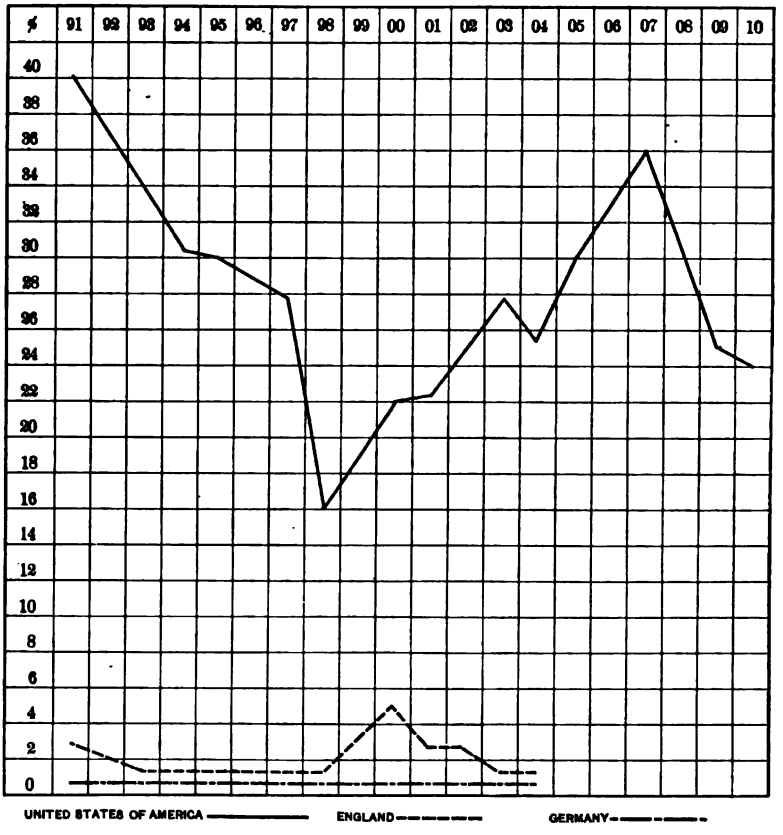
While it is desirable that this experiment of Lt. Bengt B'oy Karlskrana, Grenadier-Regiments (1903), should be repeated on a larger scale and with more men, still, judging from the psychological experiments of Kraepelin and others it is what we should expect.

Amount of Alcohol Consumption.—The relative amount of alcoholic indulgence in the different armies is best represented by the text table (Fig. 51) of admission rates per 1000 men for alcoholism in the different armies (partly as given by Stier):

Italy, in the period 1891 to 1904, did not exceed an admission rate for alcoholism of 0.1 per thousand. France, in the period 1891 to 1900,

averaged 0.18 per thousand, and then increased rapidly to 2.4 per thousand in 1904. Since our general admission rate for all diseases is about 400 per thousand higher than other countries (England 861 per thousand, United States 1250 per thousand), mostly because we include sick in quarters and those at home and abroad, this difference is not quite as extraordinary as appears in the Table. Besides, in England the military offences because of alcoholism correspond more nearly with our own. Thus, England has a record of 132 per thousand minor offences

FIG. 51



and 889 serious offences in 1895, and in 1904 the record was respectively 100 per thousand and 1763 per thousand. Our own record for 1910 was 112 per thousand minor offences and 739 serious offences. Also in 1906, England's record of admissions for alcoholism in the colonies was 52.6 per thousand and at St. Helena, 23.3 per thousand. While this further comparison with England, as the country having more nearly the same conditions, may be somewhat comforting, still the amount in our country is excessive and demands very careful study and preventa-

tive measures. The removal of the canteen meant, to a great extent, the removal of the power to control the amount of drinking per man. But the question is broader and more complicated than this one phase of it.

England's figures, as do ours, indicated an increase in drunkenness in war times, *e. g.*, the Boer and Spanish-American War periods. The really lower rate in beer- and wine-drinking countries is what might be expected. Stier, in an exhaustive investigation, found that the amount of drunkenness and of military offences because of drunkenness in the German Army, were in direct relation to each other and varied in different parts of Germany with the habits of the people as to drinking in general, and especially as to the drinking of distilled or fermented liquors. There is nothing in the military service itself to cause drinking.

Relation of Alcohol to Military Offences.—The medico-legal phase of alcoholism is very important from a military standpoint. In the psychiatric department of the Vienna Military Hospital No. 1, during a period of ten years, Mattauschek reports that 17.5 per cent. of the medico-legal cases had to do with offences associated with alcohol. In Berlin, at the Charité, Stier, in a two years' period, found that 50 per cent. of his military medico-legal cases had to do with offences associated with alcohol. Stier also, after a long experience, says that many of the cases of absence without leave, desertion, and assault in the German army are due to acute alcoholic conditions. With the customary social restraints removed by the effect of alcohol, these men commit acts which would appear entirely foreign to their usual conduct. As the acute effects pass away they find the result of their acts unbearable and run away to hide themselves in a new community.

Jude, in France, studied the military offences and their relations to alcohol at Lyons, and in the Tenth Army Corps at Rennes. He was able to find a distinct history of alcohol in 141 (or about 35.5 per cent.) cases out of a total of 397 cases. Besides this, he found in six of the 15 cases of abandonment of post that the sentry had gone to the neighboring café for alcoholic drink; that there were certain social-evil offences usually associated with alcoholism—in short, that the alcoholic stamp was found on more than the 35.5 per cent. mentioned. On this account he separated the offences into the violent, apparently unpremeditated offences, and the, in the nature of the thing, premeditated offences, as follows:

I. Umpremeditated violent offences:
   1. Rebellion and resistance of authority.
   2. Threats without premeditation.
   3. Aggravated assaults.
   4. Homicidal assaults.
   5. Public drunkenness and breaking of arrest.
   6. Refusing obedience.
   7. Assaulting superiors.
   8. Outrages of various sorts.

II. Premeditated—not violent acts:
1. Desertion.
2. Falsifying papers.
3. Cheating.
4. Larceny.
5. Abandoning post.
6. Asleep on post.

One hundred and sixty-four belonged to the first class of unpremeditated deeds, and 67 per cent. (111) had an alcoholic history, while 32 per cent. (53) had no alcoholic history.

Two hundred and thirty-three belonged to the second class of premeditated deeds, and 87.12 per cent. (203) were non-alcoholic and 12.88 per cent. (30) were alcoholic.

He further studied the General Courts-Martial Records at Rennes and Lyons during the years 1908 and 1909 and found as follows:

		Rennes.	Lyons.
Premeditated offences:	Alcoholic	7.74 per cent.	20.88 per cent.
	Non-alcoholic	92.26 per cent.	79.19 per cent.
Unpremeditated offences:	Alcoholic	68.6 per cent.	65.11 per cent.
	Non-alcoholic	31.4 per cent.	34.8 per cent.

The French Govermnent, in a circular issued May 3, 1900, forbade the sale in canteens of "distilled or alcoholic drinks" of any sort, but permitted the sale of fermented drinks, such as wine, beer, cider, etc. In times of peace the issue of brandy to all branches of service and gendarmes was forbidden by Presidential decree, May 5, 1901. Circular No. 77, 1909, permits the use of 8 ounces of wine or its equivalent in some other form of fermented liquor at each of the principal meals on the appearance of an epidemic, to avoid drinking contaminated water, etc. This seems a conservative attitude in regard to peace conditions and commends itself to our consideration.

The Austrian attitude toward both civil and military offences committed under the influence of alcohol is unique. If the man is shown to have become completely intoxicated with no intention of committing the offence he is at once acquitted of that offence, but found guilty of drunkenness and punished in civil life with arrest for one to six months or even more, depending upon the results of the offence, and whether from previous experience, he might have expected such a result of alcoholic indulgences. In military life, if the offence is committed while on duty, or if it has injured the service, the punishment is transferred to the drunkenness to be sure, but he may be imprisoned for six months to a year, or even five years. In most countries, however, it is considered better to make the punishment correspond to the individual instead of the crime; although the practical point of the influence of the individual's act upon his environment is not forgotten. One cannot foresee in each case what will be the result of indulgence in alcoholic drinks.

In the Italian army when the man is not a chronic alcoholic and the

drunkenness is accidental the punishment is reduced to one-sixth when drunkenness is complete, and one-half when it is partial. Again, we have, however, the distinction that this will not apply to cases of revolt, mutiny, or insubordination. In the armies of Holland, Belgium, Sweden, Norway, France, Germany, United States, and England the reduction in punishment for an offence when drunk is only possible when it is shown that there was mental irresponsibility. Spain, on the other hand, recognizes no reduction of punishment because of drunkenness under any circumstances.

As to the amount of drunkenness in the military offences in our own army the Judge Advocate General's report for 1909 says that drunkenness was an element of the General Court-Martial offences in 12.7 per cent. (657 cases) of all the cases as against 493 cases the previous year. A still larger influence was shown in the Department of Mindanao, P. I., where 52 per cent. of the cases were caused directly or indirectly by drink. In the Department of the Visayas, P. I., 80 per cent. of the Summary Court offences (the lowest military court) were traceable to the use of liquor, usually the native vino.

Mental Abnormality and Acute Alcoholism.—From the psychiatric and medico-legal standpoint then we are interested in what will indicate to us the presence of mental abnormality in acute alcoholism. The family history will generally, on careful investigation, show a neuropsychopathic taint. Stier calls special attention to the common occurrence of the following triad: bed-wetting, stammering, and left-handedness as very common and often overlooked taints. If we find a history of previous unusually severe sickness, of head injury with unconsciousness and vomiting, of epilepsy or epileptic equivalents, of a lack of grasp on life and previous punishments, and especially of a previous intolerance to alcohol—if we find any part of these we may examine further for the pathological aspects of the case in hand. If there has been a previous alcoholic intolerance it is especially important to discover the manifestations—*e. g.*, restlessness or stupidity, excitement, assaultiveness, quarrelsomeness, etc.—for such manifestations often repeat themselves. Of importance are the facts as to any history immediately preceding the outbreak of unusual exertion, great heat, emotional excitement, or weakness from previous sickness. Many times a history can be obtained of confused excitement, assaultive tendencies, and noticeably peculiar conduct prior to committing the offence. The sharp cut and complete amnesia is more characteristic of epilepsy, and the partial amnesia with cloudiness is more frequently found in the alcoholic forms. The suggestibility of the alcoholic makes it important to examine him as early as possible, because what he apparently recalls changes greatly as time passes. He may even come to believe that he should remember nothing.

Physical examination may reveal signs suggestive of the types particularly prone to pathological alcoholic effects. Depressed adherent scars of head or scars of tongue or cheek, etc., suggest head injuries and epilepsy. Exaggerated reflexes, vasomotor disturbances, cardiac

irritability, tremor of hands, and dilated pupils suggest neurasthenia. The sensory changes of hysteria are very characteristic. Stigmata of degeneration, tattooing, bad habits (biting finger nails, etc.) suggest the psychopath.

We must bear in mind that alcohol is often apparently the exciting etiological factor in the beginning of such mental diseases as dementia præcox, manic-depressive psychosis, and degenerative psychoses.

The artificial production of drunkenness in the hospital is undesirable because we cannot reproduce all the features of the previous outbreak, and a negative outcome may really damage a meritorious case. Rather should we base our conclusions as to the existence of pathological elements in the alcoholic condition upon a study of all the factors of heredity of the previous life, and of the circumstances connected with the occasion under consideration.

Classification of Acute Alcoholic Mental Conditions.—Stier has given us a schematic classification of acute alcoholic mental conditions, which especially from a forensic point of view it seems well to keep in mind.

I. Those alcoholic conditions arising on a pathological basis and having pathological symptoms.

1. Pathological drunkenness in the narrowest sense of the word—as an independent transient psychosis or as part of a general mental disease.

2. A more severe alcoholic condition occurring in evidently pathological people who through permanent changes in the nervous system have acquired a special susceptibility to alcohol—a complicated and persistent intolerance.

II. Those alcoholic conditions without a pathological foundation and without specifically pathological symptoms.

1. Severer alcoholic conditions occurring in people who because of exhaustion, great emotion, heat, hunger, etc., have a temporary susceptibility to alcohol—simple transitory intolerance.

2. Severer alcoholic conditions dependent solely upon an excessive amount of alcohol.

3. Mild alcoholic conditions or ordinary drunkenness.

Chronic Alcoholic Mental Conditions.—Of the 1102 admissions of enlisted men at the Government Hospital for the Insane in the period 1899 to 1908 we find that 136 (12.34 per cent.) were chronic alcoholic psychoses in the sense that the earlier symptoms were associated with alcoholism and had the alcoholic coloring. Deducting 19 who were still there in 1909 in a chronic demented condition, and who were probably cases of dementia præcox, we have 117 cases (10.6 per cent.), with a recovery rate of 91.5 per cent., *i. e.*, that number were able to leave the institution in a condition to care for themselves. These alcoholic psychoses, such as alcoholic hallucinosis, the Korsakow psychosis with its polyneuritis, great attention, and memory disorders, disorientation and confabulation, and the mixed chronic forms make a group peculiar to themselves. They are all manifestations of chronic

alcoholism. Kraepelin estimates that the Korsakow psychosis occurs in 3 per cent. to 10 per cent. of the delirium cases and that the hallucinosis appears in 12 per cent to 15 per cent. of the delirium cases. A special predisposition of the individual, the continued misuse of alcohol, a particular cortical susceptibility to explain the auditory hallucinations, and a secondary toxin evolved from disturbed metabolic conditions, have all been advanced as hypotheses to explain their occurrence. We do know that they are distinct clinical entities, due directly and possibly indirectly to the chronic misuse of alcohol. The admission rate is fairly constant and depends upon the size of the army.

Signs of Chronic Alcoholism.—In military life the statements of the patient or his comrades as to alcoholism are even more unreliable than in civil life. There is a form of habitual chronic alcoholism with pay-day excesses that is regarded by many soldiers as a moderate indulgence. Besides the unreliability of the statements of the chronic alcoholic is notorious. The summary court record of the man and the inability to hold the position of non-commissioned officer are often suggestive of chronic alcoholism. The early morning drink and the large single drink will often be admitted. The bodily signs of chronic alcoholism are hence important. Ziehen gives the following excellent list of the most frequent signs:

1. *General Reduction of Muscular Power.* (Kraepelin found that only 50 per cent. had average bodily strength.) The dynamometer falls at times to 30 k. (the average man shows 100 to 120 k.). The facial muscles hang loose and give the expressionless face of most of the chronic drinkers. The tongue often deviates to one side, with jerking and fibrillary twitching. With the peripheral neuritis of course we have actual paralysis.

2. *Alcoholic Tremor.* It is seen most commonly in the tongue and hand. (Kraepelin found the hand tremor in 76 per cent. and tongue in 35 per cent.) It is most marked in static innervation, *e. g.*, when fingers are spread apart. It is less when at rest. It is rapid, rhythmic, and fine. It is usually most marked in the morning. It cannot be called pathognomonic, however. In this same category belong the painful tonic contractions of the calf muscles found often in drinkers.

3. *Disturbances of Sensation.* Most frequent are the paresthesias, hyperesthesias, and neuralgias. The localization of sensations is defective, especially on the forearms and hands and legs and feet. With the late stages of peripheral neuritis we find anesthesia and at times the pseudotabetic picture.

4. *Disturbances of Sense Perception.*—Thus we have the subjective seeing of sparks or floating specks and the ringing in the ears. Dimness of vision, narrowing of the visual field, and temporal pallor or cloudiness of the optic disk have frequently been noted.

5. *Tendon and Skin Reflexes.*—These are usually increased unless there is a peripheral neuritis. Of 235 cases, Kraepelin mentions the increased patellar reflex in 199, the decreased patellar reflex in 26.

Kraepelin says that the three most prominent physical signs of chronic alcoholism are tremor, neuritis, and Romberg—taken altogether he found one or more of these signs 279 times in 164 cases. As to the indulgence in alcoholic drinks, Kraepelin found 60.5 per cent. of the chronic alcoholics drunk more than 4 liters of beer daily. The proportionate indulgence in brandy, gin, and whisky was even more striking:

Of the cases of drunkenness, 47.6 per cent. drunk also distilled liquors.

Of the cases of chronic alcoholism, 64.1 per cent. drunk also distilled liquors.

Of the cases of alcohol psychoses, 87.6 per cent. drunk also distilled liquors.

Forty-eight per cent. of the chronic alcoholic admissions showed serious psychic disturbances in the Munich clinics; 53 per cent. of these showed delusions of jealousy; 46 per cent., auditory and visual hallucinations, with delusions of persecution.

Of the delirium tremens cases, 65 per cent. had visual hallucinations; 43 per cent. had tactile hallucinations; 25 per cent. had, in addition to above, auditory hallucinations, and only one case had auditory hallucinations alone. Suggestibility, cheerfulness, clear consciousness, distractibility, and ultimately a fair recollection of all the occurrences were noted in nearly all the cases.

Of the 41 cases of alcoholic hallucinosis, 40 began after a short period of hypersensitiveness to noise, with a sudden full-blown attack of hallucinatory voices accusing and threatening them and ideas of persecution and reference. Almost uniformly in soldiers the hallucinatory accusations have reference to sexual perversion. Anxiety dominates the picture and they earnestly and sometimes forcibly protest their innocence. The Korsakow is the least frequent of these alcoholic psychoses and shows the most of organic changes and the greatest intellectual disturbances. The fully developed cases are not common in military hospitals, although the syndrome is encountered frequently in chronic exhaustive conditions. The typical case rarely recovers.

Treatment of Chronic Alcoholism.—From the military standpoint, the treatment in the uncomplicated delirium tremens cases possesses nothing unusual. The cases are generally received in the prodromal or early stages. The continuous hot bath with a sedative and purgative will cure the average cases. Apomorphine, 6 to 8 mgm. at the beginning, empties the stomach and also acts as a sedative. Owing to the close oversight in military life the cases are always sent in early and the prostrated cases are rare. I have rarely found it necessary to withdraw alcohol gradually. The usual hypodermic stimulation will prove sufficient when required.

The alcoholic hallucinosis cases are very deceitful. They improve with custodial care promptly, but recurrence with mild alcoholism is very common and convalescence from a military standpoint is very protracted. Periods of cessation of hallucinations are often unaccountably followed by a renewal of the acute symptoms even when in close

confinement. Many of them may be discharged within a reasonable time, on certificates of disability on their own responsibility. Some will require prolonged asylum treatment. The case with a typical Korsakow psychosis is generally a candidate for asylum treatment.

The chronic alcoholic is unfitted for the service and requires prolonged treatment. With the proper control he can, in a large number of cases, be made a self-supporting, satisfactory member of the community. In the absence of any convalescent military homes in the United States our duty is to separate him from the army and, if possible, secure his entrance to a civilian inebriate asylum. I have been surprised at the permanent improvement of a few cases after four or five months' treatment—but this experience is exceptional. Improvement with withdrawal of the alcohol is uniform. A residual deterioration is frequently noted and greatly impairs their possible military efficiency. A few of them have remaining a paranoid state. Those associated with dementia are of a later stage than will usually be seen in a military hospital.

Toxic Psychoses.—For convenience the heading Toxic Psychoses suggests itself as covering a class of cases due to heat, exposure, or acute infectious diseases. The alcoholic psychoses might be classed in this same group, but they are of such paramount importance in military life that they seemed to merit a separate consideration. Whether these psychoses are due to a specific toxin itself or are secondary to bodily changes resulting from the action of a specific toxin and are found in those having a predisposition to mental disease—whether any or all of these factors enter into these psychoses—they have in common the following traits: that they are often of short duration, arise in connection with bodily disorders, and are characterized usually by confusion, motor excitement, with a tendency to violent, harmful acts, and a tempestuous course. The circumstances of military life especially demand their speedy recognition and treatment. The etiological factors are prevalent in all military experiences. Frequently they arise where the treatment is more difficult than in civil life and they are more dangerous to their surroundings. The chances of recovery for the patient depend greatly upon their early recognition and proper treatment. They include also that speedily fatal mental disease called acute delirium.

Etiological Factors.—These toxic etiological factors were found in 28.6 per cent. of 1102 military mental cases admitted to the Government Hospital for the Insane in the period 1899 to 1908. In the Russian army, during the Russo-Japanese War, they formed 28.2 per cent. of all the classified admissions. Fortunately the recovery rate is high—71 per cent. in the Government Hospital for the Insane—while Kraepelin says the outlook is very favorable. Naturally these cases do not include the more acute fever deliriums of Kraepelin, where in his experience one-third have a fatal outcome which depends greatly upon the concomitant bodily disease.

HEAT STROKE.—Heat stroke or heat exhaustion were given as etiological factors in 123 military admissions to the Government

Hospital for the Insane in the above period and the recovery rate was 71 per cent. Hyslop, in the Indian service, collected 55 cases of mental disease from sunstroke. He also studied six cases of imbecility arising in children who had been previously normal, but who had been subjected to the heat of the Red Sea at this time. Other Indian surgeons have reported a number of cases of epilepsy, chorea, etc., following sunstroke and resulting in the patients being invalided. Our own naval surgeons report many cases of nervous and mental disorders associated with the excessive heat of the engine rooms on board ship especially in the tropics.

Acute Infectious Diseases. — Müller credits acute infectious diseases with producing 2 per cent. of all mental diseases. Friedländer, in his extensive work as to the influence of typhoid fever on the central nervous system, credits typhoid fever with mental disturbance in 1.5 per cent. to 2.5 per cent. of all the cases. Roger and Beigbeder estimate that 7 per cent. to 8.5 per cent. of the cases of erysipelas show mental symptoms. Ziehen says that 1 per cent. of malarial cases show mental symptoms. Pasmanik in Bulgaria, from a study of 5412 recurrent chronic cases of malaria, found that 2 per cent showed mental disturbance lasting more than twenty-four hours. At the Letterman General Hospital, Presidio of San Francisco, Craig found that 25 per cent. (376 cases) of all the cases examined in the hospital, no matter what the diagnosis, showed latent malaria (269 estivo-autumnal, 95 tertian, and 3 quartan). Among these cases were 9 classed as mental cases, *i. e.*, nearly 2.4 per cent.

At the Government Hospital for the Insane during the above period we find 139 cases (12.6 per cent.) in which acute infectious diseases were considered etiological factors as follows:

Dysentery, 19 cases, with 79 per cent. recovered.
Typhoid fever, 21 cases, with 62 per cent. recovered.
Malaria, 85 cases, with 70 per cent. recovered.
Tuberculosis, 6 cases (as predisposing factor).
Acute articular rheumatism, 3 cases.
Dengue, 2 cases.
Beriberi, uncinariasis, and influenza, each 1 case.

As to symptoms, on admission 56 per cent. were depressed, 20 per cent. were excited, and 15 per cent. were confused or appeared demented.

Symptomatology.—Although Kraepelin endeavors to show a connection of some of the bodily diseases with the mental picture of the mental disease, still he admits that this consists only in the grouping of the symptoms which does not conform to any one of the acute functional mental disorders. Bonhoeffer says that qualitatively a difference cannot be established and that symptomatically we may classify the predominating features as follows:

1. Hallucinatory form.
2. Psychomotor, katatonic form.
3. Incoherent form, with flight of ideas.

Both Kraepelin and Bonhoeffer speak of a Korsakow syndrome occurring late, generally in the convalescent period. During the Russo-Japanese War, Steida found among the Russian soldiers, 5 out of 50 cases of typhoid fever with a Korsakow syndrome occurring generally in the first or second week of convalescence. These cases had had little or no delirium in the first part of the illness. The mental symptoms came without warning, with all the coloring of confabulation and expansive delusions. He thought that the exhaustion of the service had much to do with it. At least it seems to possess an especially military importance. Of this general class of cases, 77 were sent back to Moscow and 2 died in the hospital at Harbin. Bonhoeffer says that the Korsakow syndrome is found in a later stage, especially in fully developed older people and after the more severe attacks. At least he had never seen it before the twenty-fifth year in civil life. The exhaustion of active military service reduces all age estimates, however.

Diagnosis.—Bearing the general picture in mind, the confusing of the condition with katatonia, the manic phase of manic-depressive psychosis, or paresis (apparently the most frequent sources of error) will rarely occur. A complete and careful physical examination will reveal the underlying bodily condition. In a few cases the bodily disease serves to intensify or excite a manic-depressive or dementia præcox psychosis. As the bodily disease subsides, however, we find the underlying mental disease continuing in a more typical form. A soldier now in the Letterman General Hospital showed a depression and confusion during his uremia. But the uremic symptoms passed and there remained a typical manic condition.

Treatment.—A recent experience with toxic psychoses following salvarsan injections deserves mention as important in the light of extensive military experience with salvarsan. Three such cases have occurred the past year. They were all syphilitic and defective, but had shown no previous mental symptoms. Within a few weeks of the second injection of 0.6 gm. doses each developed a period of confusion, hallucinations, and mild delusional ideas lasting from one to four months. Each ended with gradually increasing periods of lucidity and convalescence was slow. One improved only with the removal of the intramuscular deposit of salvarsan. The other two improved with potassium iodide.

In general, the chief part of the treatment has to do with the bodily disease, and with this the mental symptoms disappear. On the mental side, constant watching is necessary. Restraint is not needed. Kraepelin in his varied experiences has found treatment in bed with watching and the continuous bath sufficient. In this connection, for the benefit of military experience, I want to insist that a continuous bath may be carried out in any ordinary bath tub; indeed, in the Charité at Berlin they were using nothing else in 1911. Sufficient nourishment, with the early use of the stomach-tube if necessary, normal salt solution at intervals, subcutaneously, intravenously, or per rectum, and

heart stimulation are the important points. If sedatives are necessary, Kraepelin recommends alcohol or paraldehyde. Hyoscine is not indicated. With the above treatment, sedatives are rarely necessary. Especially since, in military experience, many of these cases will be treated in the early stages by those not trained in mental diseases; the least that can be done is to do no harm.

Transporting a case in an acute phase is particularly dangerous for the patient. In the second place they will, within the usual limit of time in military hospitals, either recover or improve so that they can more safely be transported. As to their remaining in the service the main objections are:

1. The convalescence is slow and with the strain of military life a return of symptoms is often probable.

2. Some of the cases prove to be more permanent mental diseases, as mentioned, and should be treated for a long period; and some cases are followed by mental deterioration as a direct result.

3. Any such patient is more liable to develop other mental disease later under strain.

Hence, however well they may succeed in civil life, it is only just to all parties concerned to separate them from active military life.

Manic-depressive Psychosis.—Twelve and one-half per cent. of the admissions (10 cases) to the psychiatric department of the Letterman General Hospital the past year were classed as Manic-depressive Psychosis. The clearer cases were all in the manic phase (4) and the others were colored by a history of defectiveness of a moderate degree and were chiefly depressive cases; 80 per cent. had a family history of mental diseases according to their own statements. They had all in their previous histories attained an average degree of success, excepting in connection with their mental upsets. Stigmata of degeneration were less plentiful, averaging only 2.7 to each case. Two cases had no stigmata of degeneration of any moment. All but one had a history of previous attacks. So far one can see that they resemble very closely the history of cases in civil life and present nothing peculiar. French and German military surgeons who have written extensively about military psychiatry do not speak of military peculiarities. There are, however, two points in our experience that have a special military bearing.

Suicide.—Suicidal attempts and suicidal ideas were very common in the depressed phases. During the past year 50 per cent. of these cases manifested suicidal ideas or attempts. These frequently came without warning and some of the cases were very desperate and persistent. None of them was successful in his attempts, however, and they varied from the one who asked for poison, and then would not take a harmless mixture, which he thought was poison, to a gunshot wound of abdomen and beating the head against the wall of the room repeatedly. The soldier in the depressive phase is removed from his family and permanent associations. He is very hypochondriacal. He has been associated with the idea of possible sudden death. He

has had in his hands constantly, weapons that mean the possibility of sudden death. Naturally the barrack room is not a sympathetic place. By preference he shoots himself. All of this setting is peculiarly military and brings an additional burden to the military surgeon, who is constantly on the alert to preserve the full strength of the effective list and who naturally is skeptical when he hears of complaint without any objective symptoms.

Restraint.—Restraint apparatus is practically not necessary and excites and damages the patient. When transporting patients or in the field the restraint apparatus has a proper place in military life. But in the hospital with attendants it is not necessary. A room by himself away from other patients is always desirable. But particularly this class of cases who are observant and approachable with patience are always more or less damaged by restraint. They have frequently come to the hospital with restraint apparatus necessarily, but this has always been removed, and so far it has not later been found necessary to use any restraint apparatus. Their mischievous ways and lack of feeling of responsibility are especially trying to those who have not had practical experience with such cases, and especially under military conditions. The continuous bath is very effective. A wet pack is always available. Sedatives — veronal, trional, and paraldehyde — will often secure the much needed rest at night. No hyoscine has been given in our experience the past year. The greatly increased expenditure of energy demands abundant nourishment. Intestinal elimination is very important.

These cases are in no way adapted to the military service and should always be eliminated. Some will recover sufficiently to be discharged into the care of friends. Two of our cases were successfully treated in this way. One case had passed through a depressive and a manic phase and when he reached us was convalescent. Owing to long service and the fact that there was not a definite history of previous attack an attempt was made to return him to duty under observation. Within a month he was returned in a mild depression with an exaggerated feeling of inadequacy. Especially in military life is the convalescence too prolonged, and the liability to recurrence too great, that we should think of retaining them in the service.

Epilepsy.—In all European armies this is mentioned as a prominent cause for admissions to hospital and discharges from the army. In the Russian army during the Russo-Japanese War, Awtokratow found that among 1044 mental cases of enlisted men, 292 (28 per cent.) and of 266 officers, 13 (5 per cent.) were epileptic psychoses. Thus we can see that they are especially undesirable in war times and furnish a large percentage of the mental cases in the field army. Besides the mental conditions brought out under stress we have the constant number to be separated from the army because of epilepsy itself. In the French army, of 1066 discharges for mental or nervous disability in 1906, epileptic cases were 418, or 39.2 per cent. of the total discharges in this class. It is interesting to note that 324 had less than one year's

service, and only one was a non-commissioned officer. Evidently they are speedily discovered and never advance in the French army. For the period 1895 to 1904 of all the discharges for mental disability the French army averaged 348.4 for epilepsy or about 0.8 per thousand of the whole French army.

Of the disability discharges in the German navy in the period 1884 to 1901 for mental or nervous diseases the epileptic formed 4.7 per cent.

In the United States army for the period 1903 to 1910, during which they are reported separately, we find a constant number of cases of epilepsy ranging from 1.23 per thousand (83 cases in 1903) to 2.43 per thousand (159 cases in 1908), averaging 1.97 per thousand (120 cases) yearly. It is evident, therefore, that in number they equal the cases of psychoses proper. It can also be taken for granted that this means cases in which there were convulsive attacks leading to the diagnosis of epilepsy and does not include obscure cases with the epileptic character and mental symptoms. One such was discharged recently at the Letterman General Hospital who had nocturnal attacks, and the injuries to the tongue had been frequently considered as mucous patches. He came under observation because, after four years' service and in spite of evident mental ability he was chronically quarrelsome and insubordinate. Another case came with a diagnosis of dementia præcox and was suspicious, intolerant, irritable, with a history of many convulsive attacks before enlistment. A third case was diagnosticated as manic-depressive psychosis and had typical periods of excitement, irritability, aggressive tendencies, etc., for which he had sharp-cut complete amnesia. Hence it is safe to say that there are many cases besides those noted. In the event of the strain of war, probably many more would become evident. Of those admitted at the Munich clinic, 1906–1907 (317), only 8 showed nothing but the convulsive attack. The most frequent psychic features were the irritability, bad temper, impulsive actions, excited periods, etc. It is evident that all of these would be very subversive of discipline. Alcoholic excesses are frequent in this class of cases and generally associated with great excitement. All of this leads to conflict with the law. Schultze says 75 per cent. of his cases among prisoners had previously been punished. Of Kraepelin's cases, 38.8 per cent. of the men had been in conflict with the law for the most varied offences. However, they can be divided into three general classes:

1. Those offences growing out of the excessive irritability and emotional instability.

2. Those who have deteriorated until they have become really unable to work and are hoboes, indulge in thievery, and are especially inclined to alcoholic excesses.

3. A smaller group is characterized as professional swindlers who often have no history of convulsive attacks but are abnormally irritable and bad-tempered. Many notorious swindlers belong to this class, but usually the swindling is stupid and monotonous in character when their life history is examined.

Benon and Froissart have described clinically the impulsive wanderings and automatic acts called "fugues." They occur suddenly and are ended more or less abruptly with amnesia for the period. The most typical with the most complete amnesia are found in epileptics. They are also found among hysterical and alcoholic cases.

The less typical varieties are the following:

1. The obsessive flight of the psychasthenic—Jacques Rousseau is an example.
2. The defensive flight from hallucinatory experiences.
3. The flight from delusions of persecutions.
4. The bizarre motiveless flight of the hypomanic.
5. The impulsive flight of the dementia præcox case.

Any of these may occur among soldiers and cause them to be guilty of absence without leave or desertion. Hence they have a peculiar military value.

The heredity of the epileptic with the predominance of an alcoholic parentage, the usually delayed physical and mental development and lack of success in previous life, the common history of nocturnal enuresis, the scars in the mouth or on the tongue, head or face, the characteristics of the epileptic convulsions; all of these points are familiar to all military surgeons.

There is no question in any country but that having once established the diagnosis the treatment resolves itself into separating the case from military life. He is always a source of danger to himself and to the army or navy.

Fortunately, the question of line of duty is generally clear, because the previous history can usually be obtained and, to one who looks, previous symptoms are obtainable. Consequently, with the exception of the traumatic cases, it is presumptive that none are in line of duty, the beginning of the epilepsy being nearly always before the age of enlistment.

Psychoneuroses.—Hysteria.—Our own military reports contain very little information as to the amount of hysteria in the military service. That it is common we all know from experience. Many cases appear for discharge because they are obstinately resistant to treatment and especially liable to relapse, two features which make them undesirable for military life where the maximum number must be kept effective for any emergency.

In a recent personal communication from Malines, Belgium, I found that the list of discharges for mental and nervous disability for the year 1909 showed the chief causes to be imbecility, 32; epilepsy, 31; insanity, 8; hysteria, 7; temporary upsets, 7; stammering, 6; neurasthenia, 2; traumatic neuroses, 2; chorea, 2; visual errors, 2; tremor, 2; diverse ailments, 6; a total of 107.

Podesta reported that in the years 1897–1901 the German Navy had 0.78 per thousand cases of hysteria and the army 0.31 per thousand. In the navy he noted that it occurred chiefly among the younger sailors, and usually those with bad heredity. He thought trauma and heat

exposures aboard ship often were etiological factors. E. Schultze also found among his military prisoners that the sailors were one-third hysterical and proportionately more than the army. Previous individual differences of make-up and bad heredity were the more important factors, and not the prison life or solitary confinement. 70 per cent. of Schultze's cases of hysteria had previously been punished, chiefly for stealing and none of them for assault, as was common among the epileptics. Nine of the hysteria cases had a total of 15 offences of absence without leave, and 11 had a total of 14 offences of desertion. The repetition was not as noticeable as among the epileptics, however, where 9 were 19 times absent without leave, and 9 showed 14 cases of desertion. The French show a gradual increase in the number of cases of hysteria from 119 cases in 1896 to 272 cases in 1904, or averaging 155.4 per year. Granjux, in illustrating the inadequacy of basing any idea of the amount of nervous and mental diseases in the French army upon the proportion of cases classed as insanity gave the following list of cases in 1906:

	Cases.
Paresis	6
Neurasthenia	86
Idiocy and imbecility	171
Insanity (alienation mental)	175
Hysteria	210
Epilepsy	418
Total	1066

Of the 210 cases of hysteria, nearly 70 per cent. (146 cases) had less than one year's service, and only one was a non-commissioned officer. They increased gradually from 0.23 per thousand, 1896, to 0.45 per thousand, 1901. This was contrary to the general admission rate, which decreased in the same period from 687.5 per thousand to 649.3 per thousand. The Bavarian army also showed an increase from 0.62 per thousand (1897) to 1.4 per thousand (1900).

Granjux makes the point that although there is an increase in the neuroses, that more than this we are coming to know the extent of the neuroses in military life, so that many previous remarkable recoveries from serious diseases of brain and spinal cord were probably of this character, and that even yet we know only a small part, since we see only the more evident ones, and those that seriously interfere with duty, while many others escape the observation of the military surgeon. It is presumable, at least, that the gradual increase in recorded cases of hysteria in different armies means an increased knowledge of these conditions. The condition is more common among soldiers than is generally recognized, and it is well to always bear it in mind not only in peace times but especially in the hysterical excitements of battle. This means that we must look for the hysterical stigmata, for they, more than anything else, give us the speediest means of diagnosis. The anesthesias are mental or functional and not anatomical.

The patient is not previously aware of them. Janet says they occur in two-thirds of the hysterical subjects. The Germans rely on topical hyperalgesias greatly, but they are less frequent in my experience. The contracted field of vision is very typical and constant and more objective. Since the outlying retinal fields are by no means insensitive, the degree of accuracy of the perimeter is necessary. Pupillary reactions remain intact, although the frequent mydriasis makes testing difficult. It is always well to remember that an Argyll-Robertson pupil and Babinski reaction are unknown in hysteria.

The underlying condition is mental. Janet has described it as "a depression, a lowering of the mental level, which takes the special form of a reaction of the field of consciousness." This includes suggestibility, absent-mindedness, and instability of manifestations. They have fundamentally a feeling of incompleteness and must attract attention to relieve this feeling. They show a lowering of the mental functions in a lazy dreaminess, an imperfect recollection of what happens about them, an indifference to people or other emotions, and an indecision or inability to begin new work or stop the present work.

These stigmata, bodily and mental, are the important diagnostic points for the military surgeon. Their exaggerations and inaccuracies are not intentional, and are generally so clumsy that they do not deceive for any length of time. At the Letterman General Hospital a recent case at first could not fully extend his leg, and in a few days had extended it and could not bend it. Joint fixations were especially common. Hysterical visual deficiencies were frequent. Hysterical convulsive attacks were frequently mistaken in spite of all that has been written. In all of these cases the hysterical stigmata were demonstrated.

Janet says: "Hysteria, in fact, is a very singular malady, the cure of which one never dares assert. It is often easy, through some psychological process or other, to cause such or such a determinate accident to disappear . . . But when an accident has disappeared, especially when it has disappeared too quickly, we should not at once cry out victory! First of all, the same accident is very likely to soon reappear." Freud speaks of great relief on the beginning of psycho-analysis, but cure is a question of months after. From a military standpoint these cases are not desirable and the diagnosis established their removal from the army is advisable, because of the probability of recurrence, because of their instability, and because of the special danger to outbreaks of confused excitement under stress of emergency or battle. The line of duty question would seem justly to depend upon whether the exciting or determining circumstance were strictly incident to the service and more than a routine every-day occurrence. A history of previous outbreaks would determine a great deal as to the prior susceptibility. Long previous service rarely comes into consideration, because these cases generally occur early in the service. In fact, the burden of proof must be on the evidence of the case, for the presumption is that the susceptibility existed prior to enlistment.

From a medico-legal standpoint the stigmata are especially important. The dream states or fugues are most important in this connection because of their relations to absence without leave and desertion. The amnesia is not as sharp cut or complete as in the epileptic or alcoholic. Portions may be recalled and the gaps may be filled in by psycho-analysis or hypnosis. It is well to remember that they are not assaultive, generally evidence a fixed idea, and are capable of analysis.

Further than this, treatment from a military standpoint, presents nothing peculiar.

Neurasthenia, Compulsions, etc. — These present really no special military features. In my experience their frequency in peace times has been greatly exaggerated. Their greater military importance lies in the fact that the early stages of more serious mental or nervous disorders are often associated with symptoms suggesting these disorders, and hence are a source of error, especially for the military surgeon. While they are undesirable as military material, still they do not merit full retired pay, and proper thorough treatment (not sick leave) should make them of fair military efficiency. On sick leave they drift about the country and come back with three imaginary ailments instead of the one they have had.

Suicide.—Military Statistics.—In the United States the proportion of suicide in the civilian population is estimated as 0.17 per thousand (16,000 annually). The rate per thousand men in our own and different armies is as follows in the years for which I have been able to collect the figures:

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
United States	...	...	...	0.45	0.52	0.69	0.48	0.59	0.44	0.31
Prussia	...	0.49	...	0.39	...	0.38	0.34			
England	...	...	...	...	...	0.15	...	...	0.30	
France	0.27	...	...	...	...	...	0.23			
Russia	...	0.19	...	...	...	...	...	0.19		
Japan	...	...	...	...	...	...	...	...	0.52	

In the period 1879 to 1884 Germany reported 2½ times more military than civil suicides. In our own country we also have about as many more military suicides than civil suicides. Gunshot wounds form the favorite method for soldiers to commit suicide, *e.g.*, in our army we find among the methods of suicides, gunshot wounds to be 38.4 per cent. in 1907, and 55 per cent. in 1910. In the year 1910 it was also noted that 20 per cent. of the suicides were non-commissioned officers; that 43 per cent. had more than two years' service; and that 68 per cent. were over twenty-five years of age. These facts are in striking contrast to the German figures, where those committing suicide are, in the majority of instances, young soldiers in the first six months of service. Evidently the problem of our military suicides involves more military service responsibility and demands careful psychiatric study.

Germans state that the most of the suicides belong to the class of incompetent psychopaths who always have special and early trouble with the military life, and are self-satisfied, sensitive, and changeable.

Others, they state, are probably suffering from a depressive psychosis. While the same facts probably obtain with us, still the longer service and advanced age of our cases would suggest that the role of depressive psychosis and probably chronic alcoholism and service conditions is more important with us.

Podesta states that the German navy shows only one-half as many suicides as the German army and that both branches show a decreasing number of suicides from year to year. While about 50 per cent. of the German navy has practically shore duty, 58 per cent. of the suicides occur among this number and the balance largely in foreign waters. In his experience, psychoses associated with heatstrokes are usually of a depressive coloring and show a large percentage of suicides. But he lays special stress upon the greater prevalence of suicide among those of the navy having shore duty, corresponding to army life, than among those having the interesting experiences of sea duty in European waters.

Consiglio has studied exhaustively the statistics of the Italian army, and states that "mutilations and suicides are especially abundant in those portions of Italy where psychoses and psychopathic constitutions are more abundant."

Of the mental cases in the Letterman General Hospital the past year, 16 per cent. had suicidal ideas, which they admitted, and 12 per cent. made unsuccessful attempts, *i. e.*, in round numbers among these cases, four times as many attempted suicide and five times as many contemplated suicide, as in the army as a whole, and yet not one succeeded in committing suicide. Of those who commit suicide, a large proportion could have been saved if they had been under psychiatric observation. Kraepelin says that psychiatric institutions prevent suicide in 90 per cent. of those with suicidal ideas.

Mental Status of Attempted Suicide.—In the Munich clinic, Gaupp studied 124 cases of attempted suicide as to their mental status and found 38 definite psychoses and only one that was normal mentally. The balance were recognized as alcoholic, epileptic, psychopathic, hysterical, or as representing slight grades of feeble-mindedness. Kraepelin regards as the types of mental disease most frequently tending to suicide the following:

1. Depressed phases of circular psychoses without marked retardation and acute confused toxic conditions.
2. Depressed or automatic states of epileptics.
3. Senile dementia with depression.
4. Paretics in depression who usually act suddenly and with no evidence of planning.
5. Katatonics who are very persistent and make use of whatever means are nearest.
6. Depressed hysterical cases who rarely carry out their ideas and make weak theatrical attempts.

The 13 cases the past year evidenced the following psychoses:

	Cases.
Alcoholic psychoses	2
Manic-depressive psychoses	2
Psychopathic constitution	3
Dementia præcox	6

Treatment. — From a therapeutic standpoint under military conditions then the important point is that a competent mental examination of all cases suggesting mental abnormality would greatly reduce the number of suicides. Kraepelin says 90 per cent. when placed under institutional care. This assumes special importance when we remember that military psychoses have the general characteristics of a short duration and a recovery in more than 50 per cent. of the cases with the assurance of a useful life in a civil community.

Simulation.—Simulation of physical defects is found in the military life of all countries and especially in those where military service is compulsory. Blau says that simulation is associated with the period of receiving recruits and maneuver work especially; that it is decreasing in Germany, where it was never as common as in France and Russia, and that in the past ten years the Germans have noted particularly apparent suicidal attempts, feigned sickness, and self-mutilation. He gives a long list of means used to simulate general weakness: obesity, skin diseases, eye and ear disturbances, mouth and throat diseases, heart diseases, pulmonary disorders; defects in feet, legs, and arms; hernia, vomiting of blood, jaundice, hemorrhoids, and genito-urinary diseases. He admits that as a class they are defectives, but urges the punishment of each case when proved. The means used are generally so stupid that a careful observation for a prolonged period and study of the cases will reveal the simulation. On the other hand many defects are skilfully produced. In Russia, paraffin was injected subcutaneously to produce a tumor; and toes were drawn back until they pointed to the sole of the foot by means of adhesive strips painfully and carefully applied for months; some moved into certain localities to acquire goitre; glove stretchers were used to produce hernia; picric acid was used to simulate jaundice, etc. In any event it is a matter of self-preservation from a military standpoint to punish such offences when proved.

In countries such as ours, with voluntary well-paid service, such cases are comparatively rare. In the Judge Advocate General's report for 1909 there is only one case of malingering recorded, and none noted in the other recent reports. While undoubtedly there were cases that escaped observation or punishment, still the number is comparatively small and negligible in comparison with other countries. Thus, Usacz made 431 general examinations in two years and found 15 simulations and 25 self-mutilators. The provisions for discharge by purchase or favor are too liberal with us to make such efforts desirable.

Ziehen speaks especially of the simulation of neurasthenia in Germany where the general pensions for disability have developed so marvellously. This may have a bearing upon our own military experience

where retirement and pensioning for this cause are not uncommon. In many cases it was simply an exaggeration, knowingly or unknowingly, of an underlying milder neurasthenia. Real sleeplessness for a number of nights and vasomotor symptoms are not easily simulated. Ziehen says that when bending, strong effort, or excitement increases the pulse more than 20 beats it is a pathological condition—generally neurasthenia. Suggestibility, as, for example, in increasing visual field by moving objects to a greater or less distance, is not found in pure neurasthenia. The gradual reduction of the dynamometric readings, with slight variations in successive testings at the same sitting, Ziehen considers typical of neurasthenia and great variations of the maximums at the same sitting or under same conditions on another day, he regards as very suspicious. The neurasthenic irritability and hypochondriacal depression are hard to simulate, although they are not absolutely essential for neurasthenia. The exaggerator or simulator also frequently adds symptoms that do not belong to the picture of neurasthenia. Ziehen also calls attention to those cases that have passed through a neurasthenic attack, and that subsequently, for some good reason, complain of all of the subjective symptoms they previously had had. In view of the modern popularizing of neurasthenia and especially so-called tropical neurasthenia in military circles, this seems a subject of great importance. We must insist upon a consistent picture of neurasthenia and beware of exaggeration or overlooking other conditions that so often lurk back of neurasthenic symptoms.

The simulation of mental disease is found even in mythology (Ulysses hitched a cow and horse to his plow and feigned insanity because of the oracle's statements about the siege of Troy), in the Bible (David drooled over his beard and beat on the doors of the town gates to affect the King of Gath), among the Greeks (Galenus mentions it, etc.) and among the Romans (Numa Pompilius, etc.). During the time of the Inquisition, 1459-1699, simulation of insanity is rarely mentioned according to Bresler. The past century has seen a great deal written on the subject. However, in a series from various sources of 10,107 psychoses, I found only 105 reported as cases of simulation. Of individual reports I find such variations as none from Sanders at Daldorf, and 0.13 per cent. from Jung at Burgholzi, to 66 per cent. from Penta in the Naples jails, and 40 per cent. (1880-81) from Binswanger at the Charité. In the Munich clinic (1886 to 1901), among 233 prisoners, 31, or 13 per cent., were found to be simulators. Evidently the local setting and individual experience play a large role. Kraepelin says in 1909, "As time passes I have grown more and more conservative as to pure simulation and I have seen a large number of my former simulators later become demented:" and "The most experienced psychiatrists admit that the number of entirely well men found among simulators is constantly decreasing." Katatonics, paranoics, weak-minded, psychopathic, and hysterical persons are found in large numbers in these classes, where part is real and part is exaggerated or simulated.

Jung in writing of the hysterical simulator speaks of the passing of simulation from the conscious to the unconscious stages—as shown in the Ganser symptom—so that the patient becomes unaware of this simulation.

All records as to simulation of mental disease show a marked difference in the number of cases discovered from year to year as well as the constant decrease. Penta, in the Neapolitan jails was dealing, no doubt, with suggestible psychopathic prisoners when he once found 66 per cent. exaggerating or simulating Binswanger's 40 per cent. in the Charité, 1880-81, has not been repeated. Kraepelin, in 1909, is much more conservative than he was in 1901. Whereas the Belgium army reported 461 cases of simulation in 1896, there were reported only 87 in 1900 and 10 in 1905. The Italian army reports, in the seven years' period, 1898 to 1904, only 13 cases in the troops and 6 in the levies. These remarkable differences suggest the following facts:

1. The suggestibility of hysterical individuals and the copying of the efforts of others, for they seem to occur in groups in different localities, *e. g.*, somewhat similar to the hysterical outbreaks in convents and schools.

2. With an increased knowledge of clinical psychiatry they have rapidly decreased until the number of cases now reported is very small.

A simulation type found in civil and military life is that of the mentally diseased person who tries to prove that he has recovered, and that his ailment was slight and temporary. In military experience this usually includes older soldiers, with gradually developing chronic mental conditions, who realize that with a continuance of the trouble they must leave the service. I have had two such cases in the past year. Both cases, however, found it impossible to maintain an appearance of recovery, when they were kept under observation, and found that the surgeon did not accept their statements. The danger lies in the possibility of their being thrown again on their own responsibility, in the service or out of it, and quite probably ending the matter by suicide. The desire to remain in his environment seems stronger in the soldier, both because he is accustomed to nothing else and because he has no local ties or family. It is universally agreed that the discovering or treating of simulation of mental diseases depends upon the following:

1. The examiner must have a clear idea of clinical psychiatry and what might be expected to occur in the different mental diseases.

2. Constant continued careful observation of the cases. None of the cases reported has succeeded in maintaining for any special length of time a consistent representation of a known mental disease. It is as impossible as for an actor to perform twenty-four hours each day. Having seized upon some prominent feature of what they consider a mental disease, they either exceed the genuine case in their efforts, or growing weary later, adopt some new manifestation of another patient or a chance suggestion from the examiner. Thus, a quiet patient,

without clouding of consciousness, and attention disturbance, does not remain continually disoriented. A loss of the simpler school knowledge is found in only dementia and great memory disturbance, or is apparently lost in a negativistic case. Kraepelin says profound dementia or acute excitement are most frequently simulated.

MEDICO-LEGAL PROBLEMS IN THEIR MILITARY RELATIONS

Were all men really equal in their mental endowment there would be no medico-legal problems. The law would decide the question of the fact of the offence and the reaction of all men under those circumstances would be similar. But unfortunately each man starts with a different endowment and each one reacts differently to different amounts or kinds of stress and strain. In both civil and military life is found the man who is defectively endowed or who through stress and strain has become less resistant to external influences.

Difference between Civil and Military Offences.—If the number of offences committed is an indication, in a general way, of the number of defective individuals, then, even taking into consideration the unusual requirements of military life, there are more offenders requiring psychiatric study in military life than in civil life, because military offences are very much more numerous. Rayneau, among the French people, has collected the most complete figures:

Quinquennial periods.	Military offences.	Civil offences.
1888 to 1892	One in 125 men	One in 685 men
1893 to 1897	One in 131 men	One in 738 men
1898 to 1902	One in 159 men	One in 999 men

Stier gave the proportion of military offences to military population in Germany in 1901 as 1 in 58.

The census figures for the United States show the following proportions of civil prison population to whole population, which we may compare with our military population:

	Civil prison population.		Military prison population.
1860	One in 1637 men	1906	One in 31 men
1870	One in 1172 men	1907	One in 32 men
1880	One in 855 men	1908	One in 33 men
1890	One in 774 men	1909	One in 28 men
1910	One in 811 men	1910	One in 29 men

Besides, in this period we have an average of 4734 serious offences and 47,478 minor offences each year in military life.

While the relatively much larger military prison population would indicate the greater need of military psychiatric work, it is encouraging on the other hand that the proportion remains practically constant and has not materially increased.

As we approach the problem more closely the first fact that attracts our attention is that in France, Germany, and Austria they find a proportionate increase of defectives and military offenders among the volunteers as compared with those doing the compulsory universal service. Corre states that in France from 1865 to 1885 military punishments were decreased as follows:

1865	One man in 118 on an average was punished.
1885	One man in almost 200 was punished.

This he attributes to universal service being established in the interval, and a better class of men thus acquired. The same change in the German army from the time of Frederick the Great to the present time is claimed to be due to the same cause. In a careful study of a ten-year period of two regiments, Jourdin found that military offences were from two to five times more frequent among the volunteers than among the conscripts, and Corre in his article reports four or five times more military offences among the volunteers. While no comparison is intended between what we call volunteers and their "soldiers by calling," the fact remains that both England and the United States, with their methods of enlistment, acquire a larger percentage of these mentally defective individuals, and thus have proportionately more psychiatric work to be done.

Principal Causes of Military Offences.—Military offences differ from civil offences in that in military life everything that a man really needs is provided for him and he has none of the struggles for existence that lead often to the crimes of theft, burglary, murder, assault, etc. On the other hand, each moment of the twenty-four hours is to be accounted for and obedience and respect are necessary. Hence we should expect to find a preponderance of unauthorized absences and some disturbing circumstances that would lead to disrespectful, disobedient, or violent conduct. Absence without leave and desertion come in the first group and the results of alcohol would explain the second group of offences. This view is substantiated when we examine in detail the more serious military offences on record for the four-year period 1907 to 1910. Unauthorized absences (including desertion and absence without leave) averaged each year 53.4 per cent. of all the General Courts-Martial cases in this four-year period (50 per cent., 53.6 per cent., 55.4 per cent., 54.6 per cent.). Two other large groups attracted our attention in this period. Offences due to or associated with evident alcoholism averaged each year 13.2 per cent. (13 per cent., 13 per cent., 12.7 per cent., 14.2 per cent.) of all the more serious offences. Offences, specified as assaults, threats, deeds of violence, etc., formed a group that is frequently, directly or indirectly, associated with or dependent upon alcoholism, and that averaged each year 19.2 per cent. (21.5 per cent., 22.4 per cent., 14.4 per cent., 18.5 per cent.) of all the more serious offences. In these three groups then we have each year as an average 85.8 per cent. of all the General Courts-Martial or more

serious offences. The first group of unauthorized absences attains even more importance because the minor offences of this sort are punished by the inferior Summary Courts-Martial, and in the year 1910 we find 57.2 per cent. were for absence without leave. It is also noticeable that in 1910, of Summary Court offences there are recorded 15.1 per cent. as due to or associated with alcoholism, and 24.1 per cent. classed as "neglect of duty," "disobedience," "disorderly," "disrespectful," or "insubordinate." The proportion of serious to minor offences in the period mentioned averaged 1 in 10. It seems fair to suppose that the minor offences represent more accurately the general conditions and we find the groups mentioned represented by even greater percentages among the minor offences. This bears out again the fact, previously stated, that in military life we have more known factors in the psychiatric problems than in civil life and hence intensive study of the subject ought to yield more accurate results along certain lines.

Offences of Military Insane. — I have recently reported in the *American Journal of Insanity* a study of the military offences found in the records of our military insane the past fifty years, from which I quote as follows:

"Since the military insane have been and are transferred to the Government Hospital for the Insane at Washington, D. C., we may, in the records of this institution, study in a general way the offences committed by the military insane. While we do not find here a record of all the military offences, still we do find the more serious offences which were associated with the final mental collapse. The records here contain, among other data, the final discharges of cases still here and the abandoned discharges of those who have recovered. Naturally recovered cases abandon 'dishonorable' and 'without honor' discharges, and those showing military offences more frequently than discharges with 'good' or better characters. Of all these discharges, I have selected only those cases that came directly from the army to this hospital and have included none of the cases that came from the different national soldiers' homes.

"Case histories have been more complete during the past seven years and furnish additional evidence of military offences for this period.

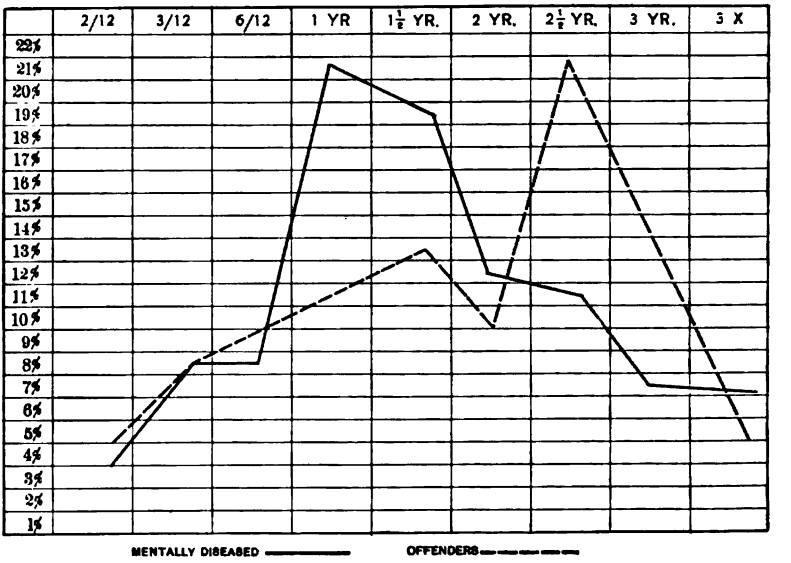
"In this way I have selected 500 discharges in the period 1860 to 1909. Of these discharges 308 (61.6 per cent.) belong to the present decade and 192 (38.4 per cent.) belong to the preceding four decades. The percentage of 'dishonorable' and 'without honor' discharges and of those showing military offences (chiefly desertion for the whole period is 12.6 per cent., 62 cases), which are distributed in relatively the same proportions in the two periods, *i. e.*, 66 per cent. in the present decade and 34 per cent. in the preceding decades. We may compare this with a German record of 1190 cases of mental disturbances, under observation in the year 1905-06, which were studied with reference to injury of the service. 104 cases (8.7 per cent.) of service injury were noted in the 1190 cases of mental disturbance.

"On examining separately the discharges of the two periods mentioned,

we find that this percentage, in the period 1860 to 1899, was 10.9 per cent., and in the period 1900 to 1909 was 13.3 per cent. discharges, showing military offences. This is due partly, no doubt, to our recognizing during the past decade more of the cases of military offences associated with mental disturbance. But among the 663 histories studied for the period 1902 to 1909, I find 67 additional cases of military offences, of more or less gravity, which were elicited in writing the histories. This shows that our figures are below the facts in the case. We must admit an increase in the number of offences committed by the insane. We are both seeing and recognizing more cases of this sort in the past decade.

"Judging from the characters recorded in these 500 discharges, the general estimate of the discharged insane remained the same throughout these five decades, *i. e.*, 85 per cent. of the characters were 'good' or better.

FIG. 52



Length of service. Percentages of mentally diseased and offenders.

"77.9 per cent. are under the age of thirty-five years, wherein they correspond closely with the average age of the military insane. These men have thus early in life proved themselves so defective that they have been cast aside. We may hope that with careful study of the individuals not one out of every eight will have also an unsavory discharge because of military offence.

"In the second place it is noteworthy that 92.9 per cent were discharged in their first enlistment period because of psychoses and that 94.98 per cent. of the military offenders belonged to their first enlistment period.

"The table (Fig. 52) shows that in this group of 500 cases the offences became most prevalent toward the close of the first enlistment period, while the general admission rate for psychoses was highest at the end of the first year. Instead of military life having an educational effect upon these cases and developing the weaklings we find the reverse. They are incapable of so rapid a development. The restrictions become more and more irksome and their defects become more and more evident. In this manner we see that the percentage of more serious offences increases rapidly and reaches a climax at the two-and-one-half-year period. This is material which cannot be utilized, and the longer we retain it the more dangerous it becomes.

"Of 138 offences of which we have found record on the discharge or histories, 49 desertions and 26 A. W. O. L. make 75 offences differing rather in degree than in quality and composing nearly one-half of all the offences. It is the characteristic route of the defectives when they are pushed too far. They cannot do their duties properly. They are the laughing-stock of the company. Delusions of persecution gather to sustain their self-respect. They become more and more irritable, secluding themselves and seeking amusement elsewhere, often under demoralizing influences. Finally they overstay the coveted leave and realize that they have become deserters. Many times under the guidance of auditory hallucinations they pass through an episode of excitement and finally at some quiet place they settle down to a life more within the range of their possibilities. During the excitements assaults are very common when they turn upon their imaginary enemies or give way to the blind impulsive anger so characteristic of this group. Of those who escape apprehension some fail to find a place where they can live after the period of excitement has subsided. Life proves more difficult than they expected and their thoughts turn to the barracks where they had never been hungry and everything was provided for them. At a different post, under an assumed name, they again enlist and become guilty of the fourth most frequent offence of fraudulent enlistment. The other offences are more in the nature of accidents, and we have a record of only one each."

Forms of Mental Diseases Associated with Military Offences.—The character of the mental diseases in our list of 122 cases with military offences corresponded with the experience and reports of the Germans and others. We had 50.8 per cent. cases of dementia præcox and the Germans had 42.3 per cent. We had 7 per cent. acute confusional psychoses and they had 12.5 per cent. We had 3.2 per cent. epileptic psychoses and they had 6.13 per cent., etc. The chief point of difference was that we had 10.6 per cent. alcoholic psychoses and they had none in their list of 1190 cases of mental disease. In this connection it is interesting to note that among our cases of dementia præcox 35.8 per cent. were in the first year of service and 54.83 per cent. in the first two years of service, while alcoholic psychoses showed none in a first year of service and only 23 per cent. in the first two years of service. Evidently the dementia præcox cases are defective

to begin with and the alcoholic cases acquire their defect through prolonged abuse of alcohol. The other mental diseases in the list offered nothing distinctive.

Frequency of Desertion.—The frequency of unauthorized absences varies greatly in different countries. In Stier's estimate for the German army it varies between 6.63 per thousand and 0.63 per thousand, depending upon the nearness to French or Swiss boundaries in which countries deserters cannot be apprehended. The recent French estimates of desertion for ten-year periods are from 6.3 per thousand, 54th Infantry, to 20 per thousand, 5th Dragoons, the difference being attributed to the greater numbers of volunteers in the cavalry. Home British troops in 1910 showed 11.8 per thousand deserters. Our average, 1898 to 1910, in the army is 49.8 per thousand, and in the navy, 1909, it was given as 55 per thousand deserters. A relatively larger number in the German navy is noted by different German writers and attributed largely to the alcoholic excesses associated with shore leaves. In 1901 to 1903, in the German army one-eighth of the military offences were due to alcohol, and in the German navy one-fourth of the military offences were due to alcohol. Practically the same relative importance of alcohol is reported from France and corresponds closely with our own figures.

Stier says that in general they are young people who, in the first weeks or months of their service, show the etiological factors noted by him, *i. e.*, homesickness, weak-mindedness, or psychopathic constitutions. Our own figures show that 45 per cent. to 50 per cent. of our deserters are in the first six months of service, 62 per cent. in the first year, and 81.4 per cent. in their first enlistment. Stier estimates that 10 per cent. to 20 per cent. of those in the Cologne prison had fled across the border and subsequently returned only to be apprehended. He divides all of the deserters, from an etiological standpoint, into three groups:

1. Those where sexual relations have lead to their desertion.
2. Those where homesickness has caused them to leave—naturally including defectives.
3. Those where a mental upset has occurred. In these cases we find a typical psychosis, or an epileptic or hysterical attack of that general class the French have described as fugues.

In my own experience I should say that substituting alcoholism for homesickness, the same etiological factors would hold for our army. Homesickness, in my experience, is exceedingly rare with us, and the large majority of our men wandered away from home before they enlisted. While drunkenness usually leads to deeds of violence and a large percentage are arrested on this account, still I very frequently find the history that alcoholic and sexual excesses have continued until they found that they were already declared deserters and hence remained away.

The weak-minded and defectives, in everyone's experience, find it difficult to grasp or acquire the great military virtues of honor, duty,

self-denial, and subordination. That they have a larger proportion of bodily defects seems evident from Stier's figures for 1901. The admission rate for the whole army was 649.3 per thousand; for prisons, 961.1 per thousand; and for companies of discipline (Arbeiterabteilungen), 2046 per thousand, while discharges for disability were respectively 12.8 per thousand, 22.3 per thousand, and 72.8 per thousand.

Stigmata of degeneration are universally recognized as more common in this class. Stier mentions as the most frequent and important among the prisoners at Cologne, genital defects, bed-wetting, stuttering, and left-handedness. Their previous life history as written by themselves and confirmed from other sources will show their previous inadaptability, their previous offences, and their wandering careers. Drastich very properly insists that one must individualize to the greatest possible extent and avoid arbitrary standards. Stier makes the important point, that as to admission to the service, the line should be drawn as closely as possible, but as to responsibility for a military offence as widely as possible, because besides the duty to the individual there is the more important duty to the military organization, to preserve it as free from offences as possible.

Punishment.—Insubordination always thrives where punishment of an offence is delayed or omitted. That this does not mean increased severity of punishment is shown by the English experiment with detention barracks replacing largely military prisons. Detention barracks were introduced in 1906. The proportion of all prisoners fell from one prisoner to nine men in 1905 to one prisoner to seventeen men in 1909. In the reports for the various years it is noticeable that the productivity of the men has increased and more strictly military work is being done. This compares very favorably with the scheme of companies of discipline in France, Holland, Germany, etc., where the stigma of disgrace is not removed, where they have no military training, but work upon fortifications, and where Plat estimated of one of the companies in Holland that 80 per cent. showed no improvement.

The fate of the defective in military life is described thus graphically by Pactet: "Inadapted to his environment he is not able to satisfy the demands of military life and arrives at the Company of Discipline, council of war, the prison, the work-house, which are the successive steps ending inevitably, after more or less of these attempts, at the insane asylum."

E. Schultze in his study of 100 insane military prisoners, found that 50 per cent. had a history of previous misuse of alcohol and 64 per cent. had been previously punished. The percentage of previous punishment varied interestingly in the different mental diseases, *e. g.*, manic-depressive psychoses, 50 per cent.; hysteria, 70 per cent.; epilepsy and dementia præcox, each, 75 per cent.; while defectives or imbeciles showed 90 per cent. In Kraepelin's clinic, 28.2 per cent. of the alcoholics had been previously punished; 12 persons, 2 and 3 previous punishments; 9 persons, 20 to 30 previous punishments; and 5 persons, 30 previous punishments. In Schultze's cases, one-half of those classed as defective,

manic-depressive or dementia præcox cases, and two-thirds of the hysterical and epileptic cases were guilty of unauthorized absences, while in 72 cases there was a record of 121 such offences. Evidently these individuals have a tendency to repeat the same offences.

In all countries there is a uniformity in the fact that desertion in war times receives a death sentence, that repeated desertions in times of peace are more severely punished, and that the desertion of a number of men at the same time means more severe punishment, especially for the leaders. In general terms, the Latin countries punish desertion in peace times chiefly according to the fact of absence without leave for more than a limited period. Stier gives the following limits in different countries: *e. g.*, Spain, 3 days; Chile, 4 days; Italy, 5 days; France, 6 days; Belgium, 8 days; Portugal, 15 days. The Anglo-Saxon, on the other hand, place the chief stress upon the evidence of intention to desert and consider the element of time only secondarily. Both England and the United States emphasize both elements and leave the decision to the court.

The punishment is always measured according to the circumstances and factors entering into the offence. There is a universal agreement that our own plan of only a maximum penalty offers the best opportunity for considering mitigating circumstances and hence individualizing. Attempts at classification and fixed penalties have been unsatisfactory. Hence in our own country the only thing still needed is an increased knowledge of the psychiatric factors of the cases by the courts, and this would naturally come largely from the military surgeons. This need is especially great for us, because, as we have seen, our army of necessity contains a higher percentage of psychopathic individuals. The success of the English system of detention barracks, instead of military prisons, is already attracting a great deal of attention in our army.

SPECIAL PHASES OF WAR CONDITIONS

General von Clausewitz said, "The atmosphere of war is danger, uncertainty, bodily strain, and chance." Von Schellendorf said of the Russo-Japanese War that only exceptionally did he see men unmoved by the danger about them and that one-third would evidently have run away if they could have escaped observation. The Greeks praised the gods "who placed fear in the hearts of their enemy," and thus gave them the victory at Marathon. Records of battle panics are found in all countries where the primitive instinct of self-preservation has swept away every other consideration. Military training is the most efficient means for suppressing this instinct. In this way Napoleon and Frederick the Great carefully prepared their troops for battle. In the Civil War, with training, we reached the record that in the twelve principal battles the North lost by deaths 19.7 per cent. and the South 19.6 per cent., while the general average for battles is only 10 per cent. for the victors and 14 per cent. for the defeated.

In addition to this primitive instinct of self-preservation, there have always been those defective individuals who have suffered mental upsets, and it is notorious that excited conditions predominate under these circumstances and that the manifestations usually begin at or near the front where the strain is greatest and such a disturbance most dangerous for all concerned.

The developments of modern warfare mean that troops are scattered over many miles of territory and the officers cannot therefore be in as close touch with their men. This means that we must, more than formerly, depend upon the spirit of the non-commissioned officers.

The predominating feature of fear in these cases is demoralizing for the other men, before the individual himself ultimately runs away and hides until he starves to death or is found. In the Russo-Japanese War, in the Russian army, where, for the first time, the proper arrangements were made for the care of these cases from the firing line back to the home country, nobody pretends that all the cases were cared for. It is reported that insane men were seen "everywhere running about as they pleased." And yet they had an average admission rate at Harbin of 90 each month and transferred them as rapidly as possible, the average time in hospital being fifteen or sixteen days. The number of cases steadily increased from 12 in the month of July, 1904, to 134 in the month of October, 1905, when, after peace was declared, the number decreased rapidly. If the men break down on land, under stress of battle conditions, what must we expect in naval battles where there is a concentration of all of these factors on each warship. The French experiment with dogs shows that even animals on board ships under fire show marked disturbances of conduct, refuse food, and commit suicide. It is evident then that we have in war conditions a peculiar phase of mental diseases under peculiar circumstances with which we have to deal.

As to the character of the mental disturbances the Russian experience, as reported by the numerous psychiatrists, who were chiefly volunteer surgeons, gives us the most reliable evidence. As might be expected, those with hereditary or acquired defects broke down first and most frequently. Steida says the most immediate results of battles are hysterical excitements, and confused states, which clear up within a few days, but irritability, fearfulness, and emotional instability remain for weeks. The Harbin record of 1310 cases show the following mental diseases in order of their frequency: Epileptic psychoses (22.5 per cent.), alcoholic psychoses (19.5 per cent.), dementia præcox (10 per cent.), confused states (9 per cent.), hysterical psychoses (7.7 per cent.), paresis (5.6 per cent.), toxic psychoses (4.8 per cent.), manic-depressive psychoses (4 per cent.), degenerative psychoses (3.5 per cent.), traumatic psychoses (3.2 per cent.), organic brain disease (2.9 per cent.). It seemed that many cases of epilepsy without previous observed convulsive attacks escaped observation and broke down under the strain. The alcoholic psychoses were found more among the reservists, and the officers had a larger percentage than in peace times. The develop-

ment of paresis was hastened by war conditions. Evidences of syphilis were nearly thirteen times more frequent among men at the front than among other soldiers. Evidently the syphilitic did not stand war conditions well. Since traumatic psychoses usually develop later than the period these cases were under observation, the percentage must have been really larger than noted. In the Franco-Prussian war, traumatic psychoses were credited with 13 per cent. and toxic psychoses with 18 per cent.

Of the nervous diseases in general, the following special points were noted among 2309 cases of nervous diseases reported by L. Minor:

1. The officers were represented by 30 per cent. and the men by 7.5 per cent. of all the cases of nervous diseases passing through Moscow.

2. The officers showed 44.3 per cent. of non-traumatic nervous conditions and the men only 28 per cent.

3. The officers showed 45 per cent. of cerebral concussion symptoms among the cases of head injuries, while the men showed 15 per cent.

4. While the surgical cases in general at Moscow showed the usual decreasing proportion of wounds from the feet to the head, the nervous cases showed exactly the reverse and the wounds decreased from the head to the feet. Since sea battles are said to give a larger proportion of head injuries, naval military surgeons could expect more cases of this sort.

5. Minor very graphically describes the ultimate results of the war as follows: "I saw wounded with portions of the skull torn away and the brain pulsating beneath the scar; wounded with portions of the jaw gone, and with noses torn away, and with lesions of different cranial nerves. The deaf and blind passed before my eyes in frightful numbers, and many of them were young. Among 1905 enlisted men with nervous diseases, I noticed 188 blind and 69 deaf. Exceptionally painful injuries of the brachial plexus, tormenting attacks of cortical epilepsy, severest forms of traumatic neuroses, hysteria, neurasthenia, etc.—all of these alike pictures to us a continuation of the war in the bodies of the returning defenders of their fatherland."

In actual battle we should no doubt find it advisable, as did the Russians, to have available ambulances with trained attendants, who are accustomed to handling such cases so that they may speedily be removed from the front with safety to themselves. Since the cases will not be many and require more permanent structures than are found in the field hospitals, they may readily be collected at some properly equipped point with accommodations for a few cases until they can be transferred to the line of communication. The Russians called these "infirmaries" and transferred the cases very speedily to the central collecting point at Harbin. Since these cases do not at first bear transportation well, this collecting point is preferably as little removed as possible from the front and, in our own conditions, would be at the beginning of the line of communication. For the establishment of this, if the case demanded, there is sufficient authority. Since it is the universal experience that such cases are of no further use at the front, the remaining problem

is to transport them home. While accumulating a sufficient number to send them by themselves (this is necessary, both because they disturb other patients and because they cannot otherwise be properly watched), the acute excited phase has usually passed away and they can safely be transported. In the Russian experience it was found that a railway journey of more than five or six days was followed by some cases becoming too much excited to proceed farther safely. Hence, when the line of communication is longer, way stations or hospitals must be established where the cases can wait for the next group of such cases, and then make the journey saitsfactorily. Travelling by sea has not proved as disturbing with us if the case is beyond the first acute excited phase. The cases improve on the trip from Manila to San Francisco and quite frequently tell me that they have "felt all right" since they left Manila.

Especially under the circumstances of a battle where the disturbance is more dangerous to others than himself, the patient can always be quieted with a hypodermic injection of hyoscine hydromate, 0.6 mgm. to 1 mgm. ($\frac{1}{100}$ to $\frac{1}{60}$ gr.), combined preferably with morphine sulphate, 16 mgm. (gr. $\frac{1}{4}$). Such a dose will produce several hours of sleeping, when the patient can be fed and given a second dose. Meanwhile he can be removed easily from the locality where he can cause harm to others. For some reasons the continued use of hyoscine with us is not as satisfactory as in Germany, and seems to increase, or at times produce, most vivid and disturbing hallucinations. Hence it would seem advisable to later make use of trional or veronal in divided doses, giving 1 gm. (15 gr.) or even more daily for a limited period. Under the proper surroundings, medicine and restraint are rarely necessary. The continuous bath can be improvised wherever the ordinary tub bath is found, and is very efficacious. In evacuation or base hospitals the screen beds (Gitterbetten) would most satisfactorily provide for these excited cases. Stier estimates for 30 patients, six continuous baths and six screens beds. These beds are like an ordinary iron bed, with an arrangement extending to a height five feet above the floor, covered with heavy wire netting and looking very much like a large bird cage with removable sides. They would be safer than the usual improvised room and avoid the damaging effects upon the patient of actual mechanical restraint. Hospital trains and boats require only the additional precaution of the protecting of windows, with heavy glass and screening, and vestibule doors with double locks. The danger is nearly always of patients escaping.

With these precautions, mental cases can at last receive the care hitherto denied them.

GENERAL PROPHYLAXIS

We must consider prophylaxis from the standpoint of the army, primarily. This is to the advantage of the individual, however, because

it means removing him from the environment which has universally been found most difficult for the mentally diseased and defective. Therefore, while we aim to keep the army organization at the highest point of efficiency, we save at the same time those who are mentally less resistant from breaking down. While our military admission rate for insanity in the period 1904-1910 per 100,000 was from 169 (1904) to 159 (1910) and averaged 164, our civil admission rate was from 61.5 (1904) to 65.9 (1910) and averaged 63.7. Hence our military rate of admission is two and one-half times greater than the civil rate of admission for mental disease.

Stier found that three-fourths of all the psychoses and suicides in the German army occurred in the first six months of service, and our figures show that 80 per cent. of mental diseases arise in the first enlistment period in peace times. From this it seems evident that the individual is predisposed to break down and that our present careful physical examination of recruits is not sufficient to protect the army against these defective applicants for enlistment. The change of environment, nostalgia, strenuous efforts, discipline, etc., are common to all the men and the vast majority improve with this life. Chronic illnesses, alcohol, and lues do not, to an appreciative extent, affect men under thirty years of age, and of our mental cases 72 per cent. are under thirty years of age. Our first task then is to see if it is possible to detect these defective individuals when they apply for enlistment.

Means to Prevent Enlisting Mentally Diseased and Defectives.—The methods of instating recruits in the service are practically the same in all countries:

1. Either the man applies for enlistment or the list of those of military age is consulted and the gross points preventing or excusing from service are examined.
2. The period of incorporation follows when the man himself is more carefully considered.
3. The man passes into usual service conditions.

Under the first heading of selection of candidates, European countries have the advantage of the following official records as far as the individual is concerned:

1. Police records of his previous conduct. The Mayor and other officials are present when the lists are made out.
2. The record of the teacher as to his progress in school.
3. The record of the church as to his church relations is often available.
4. In Germany, at least, there is a record of any mental disease sufficient to have caused his admission to an asylum.

With us all such records are practically non-existent, and we simply stand face to face with a man, who generally is far from his native place, and who has generally appeared because of one of two reasons: either because he is "out of a job" or because he wants to travel. Evidently then our military surgeons must know their psychiatry and the things for which they must look in the individual himself. This will, of course,

take some time, and fortunately our plan calls for three months' study and preparation of applicants for enlistment at recruit depots. The recruiting officer does reject a large number, *e. g.*, 1908, Adjutant General's Report shows 39,137 accepted at recruiting office and 104,014 rejected at the recruiting office and an additional 5152 rejected at the recruit depots. But the records of all who have examined the subject show that at least 13 per cent. of the mentally diseased in the army have had previous attacks of more or less severity in spite of all of the rejections mentioned above. Line officers at recruit depots, who come most intimately in contact with these applicants in the recruit company, tell me that they realize that a certain number of men have not the mental qualifications to make good soldiers and yet they cannot explain exactly wherein this lies. Medical officers tell me they reject some mental defectives and feel that there are more. So we see that in practice that the need of increased psychiatric knowledge is plainly felt by those in contact with the problem. What follows are not only my own convictions on this subject but also the recommendations of those French and German writers who have most fully studied the problem.

Stigmata of Degeneration.—If borne in mind they will be seen not only in plentiful numbers among the insane, but also among those in the venereal wards, and among military prisoners. Especially cranial defects, ear abnormalities, and palate irregularities are noticeable at a glance and hence play an important part in dealing with large bodies of men. They are all gross defects of physical development and, with such gross evident physical defects, who can say what the finer cortical structures of the brain might show. Italians have found marked microscopic changes in arrangement of cell layers in 33 epileptics and 16 congenital criminals. Albrand reports ear stigmata alone twice as common among the weak-minded, while Schultze in examination of 1108 soldiers found ear defects only 27 times. Among 300 insane there was reported an average of 4.7 stigmata per individual (total, 1428 stigmata). W. Sommer reports, in regard to the Allenburg collection of skulls of insane, that 96 per cent. were asymmetrical; two-thirds of these suggested the expected deformity from the first position in labor and one-third the second position in labor. Premature synostoses frequently cause asymmetry. Psychical changes as a result come on slowly with the growth of the brain in later years. Anyone who has observed cranial development among the insane has been struck with the predominance of defective frontal development—the narrow retreating forehead especially among the præcox and defective cases. The palate deformity among soldiers has been one of the most common observed. Lombroso regards tattoo marks as an atavistic stigma, and among 5348 criminals found them among 10 per cent. of adults and 34.5 per cent. of the younger. Boigey noted the same among sailors and soldiers in France and found that the larger percentage was acquired after enlistment and associated with some strong emotional experience. Stier found a large percentage of genital

abnormalities among the prisoners at Cologne. Moebius, in Germany, decided that a cranial circumference of less than 53 cm. meant a strong probability of pathological conditions. Bayerthal says that a normally built cranium with 50½ cm. or less for men is pathological. It is certainly advisable to investigate cases with a low circumference measurement. Of 245 school children reported by the teacher to Caillard as supposedly abnormal, 198 were found to be abnormal, and Caillard noted 19 per cent. speech disturbances, 54 per cent. misplaced and deformed ears, and 51 per cent. palate deformities. Evidently multiple stigmata of degeneration are found among those we desire to avoid enlisting. Since we have averaged in round numbers 20,000 original enlistments and 10,000 reënlistments annually the past ten years, it is very desirable to have some obvious danger signal to attract our attention in such a large body of men.

Heredity Defects.—Stier says that almost all military psychoses show hereditary defects. Koller and Diem, in an exhaustive study of the question of neuropathic and psychopathic hereditary taints in 1543 cases, found direct hereditary influences in 57 per cent. of insane and 30 per cent. of sane, and indirect or collateral influences in 77 per cent. of insane and 63 per cent. of sane. But modern research in this subject has shown that only by intensive study can we approximate the facts, and when so examined, neuropathic tendencies follow closely the Mendelian laws. Viewed in this light, the findings of Koller and Diem are what we should expect from gross superficial study. Fortunately the potency of the defect is greater in the immediate family, and by careful questioning we can elicit a great deal of the history of the immediate family of the applicant. By this means we gain an idea of the resistive power inherited, and we already know the external factors with which he will come in contact. We can often form some idea of the degree of recessiveness of the defect. Not by any means should hereditary defects alone lead us to reject a man, because, as shown by the figures of Koller and Diem, a large percentage of sane people also have hereditary defects. We should regard it very much as we would an hereditary tuberculous predisposition, *i. e.*, we should expect less resistance and study the individual case further. To one who knows the manifestations of psychopathic taints it is usually easy to elicit the history of ungovernable temper, inefficiency, wandering life, sudden disappearances, etc., in the family. In my own cases a history of alcoholism in the parents is very common.

History of the Individual's Previous Life.—Anyone who has studied this class of cases could easily give a model life history that would correspond to a majority of these cases. Evidences of cranial birth trauma, with delayed walking and talking, are very common. Severe attacks of acute infectious diseases with delayed development afterward, mean very often intracranial involvement. Progress at school, as compared with other boys of his age and opportunities, offers a standard of comparison for the period of six to fourteen years. From a study of our cases one gains the strong impression that all but the more defective

reach the fourth grade; that the more competent go on to the sixth or seventh grades, and that only the exceptional one enters high school and rarely graduates. He does not stand at the head of his class and is usually older than the other scholars. From fourteen years to the time of enlistment we have the period of pubertal changes, of leaving home influences, and of independent living. Of all of the three periods this is the most important, and being the most recent it is therefore the most easily studied. Many of the præcox cases start with good opportunities, and very soon there comes an unexplained, barren period of a year or two when they remain at home and do practically nothing independently. If they again begin an independent life it is more as a bit of driftwood, changing occupation frequently and wandering from one place to another. They frequently become tramps, in which case they will admit travelling for a time with someone from place to place. The additional strain of military life will bring on an acute attack in these cases as a rule. At times, because of the urgent demand for recruits, it is not uncommon for a man, within three months, to go from New York to the interior of the Philippine Islands. The amount of change involved is self-evident.

As a rule, the ignorance of a previous mental upset is more because the man's history has not been investigated than because the man intentionally deceives, for the first record of a more careful investigation usually contains the man's statement of the fact, with a definite idea of the place, if not of the dates, when he was in an institution.

The defective is plainly a misfit in life. He will tell with interest of his frequent changes of location and employment. From two weeks to three months is the average time he remained in any employment. He followed one occupation and then another. He was "out of a job" or wanted a change and therefore enlisted.

The epileptic will admit his frequent outbreaks of anger, and on questioning will recall his going from one place to another and not knowing how it all happened. Convulsive attacks and bed-wetting will not be admitted for a period prior to enlisting, and he will claim to think that he had recovered. The evidences of a nocturnal attack are more easily elicited.

The history of previous punishments for legal offences is difficult to obtain because it is a painful and clear recollection which he will deny as not really concerning anyone but himself.

The cases which, for one reason or another, suggest the necessity of investigation should be required to write a life history. By this means we also gain a speedy knowledge of their educational defects, if any. The points to be covered should be indicated only generally and direct questions avoided, for we want his own elaboration of the subject, and any special points can be investigated later. Of course this history will be colored favorably to himself and the facts must be viewed judicially.

Reports of Those in Charge of the Man.—From this we can learn not only of his success or lack of success in drill, etc., but also of his conduct

in barracks. Experience with thousands of men, placed in identically the same circumstances, soon teaches those in charge the limits of conduct of the average normal man. Another point insisted upon is that the man appearing on sick report frequently, without sufficient cause, is very liable to have ideas of a somatic defect, so common in certain psychoses. It is also worthy of note that while the foreign-born form 10 per cent. of the army, they form 25 per cent. of the military insane.

Specific Intelligence Test.—Ziehen, Rodenwalt, Drastich, and others have made very clear that such tests must be individualized as much as possible. Having learned what a man in his circumstances ought to know, we can easily supply a corresponding series of tests, which should be carried to the point of establishing his intellectual limitations. In advocating the rejection of an applicant we cannot offer our impressions, but must be able to offer evidence of the man's defects. The five points of examination mentioned are all practicable and based on the supposition that we have available only the man and his immediate surroundings. From these we should be able to prove or disprove the man's mental acceptability. It also should enable us to become aware of any mental disease existing at this time. In correspondence with the families of such patients the past year it has been my experience that they will generally write of previous peculiarities and mental upsets if they are given any reason to believe it necessary.

Removal of the Mentally Diseased or Defective after Enlistment.—A certain number of these cases will merit a trial in service conditions, because of the great expense of transportation, clothing, food, etc. However, the line should be drawn very carefully. The Adjutant-General's Report for 1910 gives the average cost for a recruit, including the recruit depot expense, for the period 1903 to 1909, as $69.39. But the additional expense of sending him to the Philippine Islands, for example, is considerably more and we cannot afford to take a great risk. Because of these doubtful ones, and because of the military factors that necessarily make for the causation of mental disease, we shall always have a certain number of mentally diseased and defectives to dispose of. If all of these doubtful cases were noted, and their respective organizations informed of the fact, they would receive special attention, many of them would be spared a mental break-down, and if they did succumb there would be less liability of their committing suicide or homicide or becoming offenders against military law.

When the cases develop they naturally come first to the knowledge of the line officer, whom the Germans call the "Company Father." The line officer at this point has a right to expect, and always desires, the assistance of the post surgeon. The least that can be expected from the post surgeon is that he shall know sufficient of mental diseases to recognize their existence, distinguish between a transitory, symptomatic mental upset, and a more serious mental disease, and recommend such measures as may be necessary to secure the safe transference of the case to one of the points for final observation and decision. The post surgeon should also be able to advise the line officer as to the

mental make-up and management of cases difficult from a disciplinary standpoint, as well as to the medico-legal points, arising at times in the cases of military offences. Hence, in all European countries, the military surgeon is given at least a year of clinical and didactic lectures on psychiatry. So far we have given only a portion of a year. In addition, in our own country and particularly in Europe, some military surgeons are given special training at the large clinics, of two to three years, so that at the points of special observation there may be those qualified to pass finally on the cases to be equitably separated from the army, with reference to pensioning, and after care; on those cases with medico-legal questions; and at those places where the undesirable cases can be weeded from the incoming stream of recruits. After careful study for years by different countries, the above plan has been agreed upon as the most efficient. The chief point is naturally the special instruction and knowledge of the military surgeon. It is either effective or ineffective, as the military surgeon is effective or ineffective. The only opposition at all is based on the question of the ability of the military surgeon. Inasmuch as he has already shown his ability in mastering, not only his own special problems, but also malaria, yellow fever, typhoid fever, etc., it needs only that the importance of the subject be made sufficiently clear to find that our military surgeons will meet this last and urgent request of the present decades.

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CHAPTER XIX

FUNCTIONS OF THE HOSPITAL IN NERVOUS AND MENTAL DISORDERS

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INTRODUCTION

In the numerous advances which have succeeded each other with such startling rapidity and have established landmarks in the history of modern medicine the hospital has played a leading role and its influence has extended far beyond its walls. The tendency of the present day is toward prophylaxis rather than therapeutic empiricism. Beginning, perhaps, with the introduction of the principles of asepsis in surgery we have seen the importance attached to preventive measures and the mortality of major operations has become almost negligible under favorable circumstances. With Koch's discovery of the tubercle bacillus the problems of the "great white plague" were taken up with renewed interest, and it soon become evident that tuberculosis was a curable disease to an extent not before suspected. The active outdoor treatment, now so universally advocated, has worked a revolution in the percentage of recoveries. The various forms of tuberculin, which are used in the hospital treatment of the disease with great advantage, point toward still greater attainments in the solution of this hitherto almost hopeless problem.

The antitoxin treatment of diphtheria is not only a curative but a preventive measure of inestimable value. The studies of the opsonins, for which we are indebted to Sir A. E. Wright, and which are a result, probably, of the impetus given to the investigations of immunity suggested by Ehrlich's brilliant side-chain hypothesis, have given us the modern vaccine therapy. While this has not as yet proved a panacea, it has led to the prophylactic use of the vaccines for typhoid fever and will doubtless lead to other equally valuable discoveries.

Schaudinn's researches have demonstrated the Treponema pallidum to be the cause of syphilis, and Wassermann has shown us the connection between that disease and the parasyphilitic disorders. This has practically cleared up all doubts which existed as to the relation between syphilis and the etiology of general paresis. The Wassermann reaction, unfortunately, has not demonstrated positively that locomotor ataxia is a parasyphilitic disease, but the presumptive evidence is so great that it is almost beyond question. It has also enabled us to discrimi-

nate between dementia paralytica and alcoholic conditions, which at times so strongly simulate it as to lead to serious mistakes in diagnosis. The cytology of the spinal fluid as shown by lumbar puncture has been strongly confirmatory, if not absolutely diagnostic, in these conditions. The relation between syphilis and multiple sclerosis, while not as yet demonstrated satisfactorily, is strongly suggested. The Wassermann reaction has pointed out the syphilitic origin and gummatous nature of many cases of brain tumor where the symptomatology was not conclusive. Microscopic study has resulted in a definite understanding of a meningo-encephalitis of a specific origin, which, although often simulating general paresis, constitutes a distinct entity. Malacia, myelitis, and many other syphilitic affections of the cord are now recognized and differentiated.

Contributing Factors in the Production of Nervous and Mental Disease.—Syphilis.—The importance of syphilis in the causation of nervous and mental diseases is shown by the fact that 18 per cent. of the men admitted to the New York State hospitals in one year and 7.5 per cent. of the women, out of a total of 5700 first admissions, were cases of general paresis.

Alcohol.—The importance of alcohol in the etiology of nervous and mental diseases is now quite generally understood by the laity. It is one of the common causes of neuritis and other affections of the nervous system and is recognized as one of the great etiological factors in the production of insanity. Of the first admissions to the New York State institutions for the insane in 1910 alcohol was an assigned factor in 25.7 per cent. and a habit disorder in 34.3 per cent. of the male cases. Of the female first admissions alcohol was given as a cause in 8.6 per cent. and a habit disorder in 11.4 per cent. of the cases. It has been estimated that 14.6 per cent. of the men and 4.4 per cent. of the women admitted to the New York State hospitals for the insane are suffering from psychoses for which alcohol is responsible. Korsakow in 1887 described a condition characterized by profound amnesia, accompanied by falsifications of memory and fabrications, and usually associated with polyneuritis and other profound disturbances of the nervous system. It has been shown that this disease is almost always due to alcoholic excesses, although occurring rarely from other causes. In addition to delirium tremens and the polyneuritic symptom-complex just described, acute and chronic hallucinatory states, paranoid trends, and other less clearly defined psychoses are directly attributable to alcohol as a source of origin. Its persistent and prolonged use, if not associated with such distinct disease entities, almost invariably results in a more or less advanced mental deterioration and dilapidation. Morphine, cocaine, and other drug addictions are responsible for 0.5 per cent. of the admissions to our institutions for the insane.

Heredity.—Heredity must be considered in the causation of both nervous and mental diseases. It is an important factor in epilepsy, neuralgia, tics, paralysis agitans, Huntington's chorea, Sydenham's chorea and many other nervous diseases. It is, perhaps, the most

common cause of insanity. During the year ending September 30, 1910, in the New York State hospitals, in the cases where positive information could be elicited, there was a history of insanity in 27 per cent. of the male, 32 per cent. of the female, and 30 per cent. of the total admissions, as contrasted with 35 per cent. during the preceding year. Neuroses or alcoholism were predisposing causes in 30 per cent. of the male, 28 per cent. of the female, and 29 per cent. of the total admissions. In 49 per cent. of the male, in 54 per cent. of the female, and in 51 per cent. of the total first admissions there were, therefore, evidences of insanity, alcoholism, or neurosis in the family. In taking up a consideration of the various psychoses it has been noted that heredity was a factor in 44 per cent. of the cases of involution melancholia, 36 per cent. of the cases of dementia præcox, 33 per cent. of the paranoid conditions, 40 per cent. of the manic-depressive psychoses, 38 per cent. of the hysterical insanities, and 41 per cent. of the cases of imbecility. These figures apply to first admissions. A history of alcoholism or neuroses was found in 46 per cent. of the alcoholic cases, 29 per cent. of the cases of general paresis, 27 per cent. of the psychoses accompanying brain tumors and other nervous disorders, 27 per cent. of the cases of dementia præcox, 33 per cent. of the paranoid conditions, 44 per cent. of the cases of epilepsy, 34 per cent. of the constitutional disorders and inferiorities, and 32 per cent. of the cases of imbecility. In 20.83 per cent. of the cases of drug addictions admitted to one of the institutions during the year there was a history of insanity in the family.

The great prevalence of cases showing the results of heredity, together with the large percentage which is clearly due to alcoholism, syphilis, drugs, improper mental habits and other preventable causes, would strongly emphasize the necessity of early medical attention.

The first and most important function of the hospital in the treatment of nervous and mental diseases should be to encourage close contact with the incipient cases and insure prompt and careful supervision at the very outset. They should be given the benefit of medical advice before they reach the terminal stages of incurability and become hopeless residents of the chronic wards of our institutions for the insane. The dispensaries of our general hospitals should always include a department which can serve the purpose of a "first aid station," if we may be permitted to borrow a term from military nomenclature, for nervous and mental diseases. Every large hospital should, in addition, hold clinics for the dissemination of information regarding these important topics as well as for the benefit of cases requiring medical treatment. Well-equipped dispensaries could not only insure contact with the incipient cases but should serve the equally important purpose of keeping in touch with patients who have been discharged from our institutions and preventing a recurrence of the disorder. The hospital treatment of many cases would be entirely avoided if advice could be furnished in time by persons who have been properly trained and who have had adequate experience.

Importance of Early Supervision.—It is only recently that the value of early supervision in mental diseases has received proper attention. The researches of Kraepelin, Freud, and Jung, and the investigations of Meyer and Hoch, show that under proper guidance and control many cases of functional nervous disease and insanity are of such a nature as to be manageable and preventable. The results which could be obtained by the prompt hospital treatment of alcoholic cases are readily apparent. It is also clearly obvious that, of the enormous number of persons who, as a result of hereditary tendencies are susceptible to a nervous or mental breakdown, many could be saved by proper assistance during the developmental stages. Of the manageable and preventable conditions dementia præcox, manic-depressive insanity, involution melancholia, and perhaps paranoic conditions are the most hopeful.

Preventability of Mental Diseases.—The importance of these considerations is shown by the large number of this class of cases coming into our hospitals. In one year there were out of a total of 7066 admissions to the New York State institutions 1206 cases of dementia præcox, constituting 17.1 per cent. of the total, 1063 cases of manic-depressive insanity, or 15 per cent. of the total number, 174 cases of involution melancholia, or 2.5 per cent., and 271 cases of paranoic conditions, or 3.8 per cent. of the total admissions. This does not include the cases closely allied to manic-depressive insanity and dementia præcox. In other words, about 39 per cent. of the total admissions may be reasonably included in the classification of manageable and preventable diseases.

Dementia Præcox.—In the consideration of the dementia præcox group Hoch has called attention to the importance which psychoanalytical investigations have shown to be attached to certain mental trends or emotional complexes which control the normal individual. These are the factors which largely influence our mental lives. The most noteworthy, perhaps, are feelings of personal deficiency, the realization of failure, injured pride, guilt, remorse and shame, which during the ordinary activities of the day are more or less lost sight of. There are also what Hoch characterizes as mental undercurrents, more or less submerged or repressed factors which are unpleasant and therefore forced into the background. These include the ordinary longings and unfulfilled wishes, over which the normal individual ruminates, and, still more important, the sexual desires, which are practically unconscious under ordinary circumstances. All of these various influences lead to conflicting emotions and dilemmas, even in the normal individual. The person with a stable mental equilibrium learns to control these conflicting emotions by interesting himself in other things or by compensating for them in various ways. The full and free elaboration of these partially submerged complexes reaches its highest development in dreams, when they appear undisguised and unrepressed, although distorted often into remarkable transformations. These fundamental emotional trends also come into free play in deliria and

in manic excitements. The normal tendency to explain to ourselves our own shortcomings and failures has its prototype in the diseased mind by delusions of grandeur and persecution. In paranoia we find an elaboration and exaggeration of lightly covered tendencies toward suspicion which develop into persecution. In dementia præcox mental conflicts, resulting from efforts at a readjustment of the individual to his surroundings, bring about the partial repression of complexes. They are distasteful and instead of coming to the surface are displaced and become unrecognizable, and peculiar delusions or hallucinations are substituted, so that instead of the elaboration and exaggeration of dreams we have the disordered transformations of dementia præcox. These perversions of normal processes are due, as Meyer has said, to bad mental hygiene. They occur usually in persons who are sensitive and reticent or seclusive to such an extent as to constitute, as Hoch describes it, a "shut in" type. These are people who are unable to adjust themselves to their surroundings and who are overcome by the difficulties of internal conflicts.

These explanations of the development of dementia præcox, a form of insanity which fills our hospitals with mental derelicts, clearly indicate the line of procedure which affords the best results. These cases must be met at the outset, not in the chronic wards, but in the clinics, dispensaries and psychopathic pavilions of our general hospitals and in the out-patient departments of our institutions for the insane. Herein lies a great and almost entirely uncultivated field and the opportunity for psychiatry to assume its proper place, hitherto unoccupied, in the front ranks of preventive medicine. A large number of the cases of dementia præcox could be cared for successfully in psychopathic wards and dispensaries. The solution of the problem lies in the inculcation of normal healthy mental processes in the incipient cases. They should be admonished regarding their method of thought, reading, and conduct. Mental conflicts must be brought to the surface and adjusted without brooding and introspection; sexual problems and relations must be disposed of fearlessly. The depressions of melancholia and manic-depressive insanity are also to a certain extent the result of unhealthy and improper mental habits. The desirability of early treatment in individuals who are predisposed by hereditary tendencies to a breakdown and who are struggling with conflicts to which so many succumb when left to their own resources is, it would seem, very evident.

Improvement and Discharge.—Of the 13,691 admissions to the New York State hospitals during 1909 and 1910, 3110 persons were discharged as cured. 54 per cent. of these cases had been in the hospital less than six months, 79 per cent. had a hospital residence of under one year, while less than 2 per cent. had a hospital residence of five years or over and 3.5 per cent. a residence of three years. Of the cases discharged as cured nearly 50 per cent. showed a duration of the psychosis of less than one month, a little over 70 per cent. of the cases less than three months, and 83 per cent. less than six months.

These statistics of themselves show the urgency of early treatment in mental conditions. Who can estimate the percentage of these cases that could have been prevented, or at least cured, without the necessity for hospital care had they come under supervision and been given early advice by properly trained hospital physicians in dispensaries or psychopathic wards? The possibilities suggested are almost unlimited in the consideration of early manic cases, alcoholic psychoses, drug and toxic psychoses, infective-exhaustive and autotoxic psychoses, symptomatic depressions, involution cases, and especially the neurasthenic disorders. A new and fruitful field has been brought to our attention by the studies of Freud and Jung. As a result of his psychological researches Freud advanced a conception of hysteria which describes it always as the result of some previous psychic trauma of which the patient has no recollection himself, the trauma being buried like a foreign body in the subconscious strata of the mind. Breuer and Freud demonstrated by means of hypnotism that such hysterical manifestations as paralyses, anesthesias, etc., were symbols of these latent memories. In the normal individual an unpleasant experience is reacted to and disposed of by a resort to tears, laughter, anger, hate, or some other outward expression. In hysteria, however, we have an unpleasant or painful idea which is repressed without adequate compensation and intentionally forced into the subconscious and forgotten, only to be followed by some substituted symbol in the physical instead of the psychic domain. Investigation showed that when the concealed causes of these physical disorders were recalled to consciousness and demonstrated to the individual the hysterical symptoms disappeared. The fact, so strongly insisted upon by Freud, that these psychic traumas are always sexual in origin is germane to the discussion.

In the uncovering of these disturbing factors we have again a practical demonstration of the value of early treatment and the results which can be obtained in our dispensaries and psychopathic wards. Many of these cases can be satisfactorily taken care of without the necessity of a legal commitment. It is in the treatment of this class that the association tests, the studies of dreams and psycho-analysis, have played such a prominent part.

Obsession and Anxiety Neuroses and Neurasthenia.—Another group of cases lending itself to dispensary treatment includes the disturbances classified by Freud as the obsession neuroses or the "Zwangsneurose," and neurasthenia in its limited sense as a sexual disorder, together with the anxiety neurosis or "Angst-neurose." These are conditions which Freud describes as resulting from perversions of the sexual instincts or habits. Without going exhaustively into the nature of these affections, which have been described at length in current literature, attention should be called to the necessity of treating these cases in psychopathic hospitals and dispensaries before they become incurable and are permanent wards of the State as the result of some psychosis.

HOSPITALS FOR THE INSANE

It will readily be seen that there is a large field for the preliminary study, observation, classification, and treatment of incipient cases of mental disease.

General Hospitals.—This great obligation devolves upon the general hospital and should be shared by the institutions, both State and municipal, for the insane. Although this can scarcely be spoken of as a new topic of discussion, but comparatively little has been accomplished. Laycock advocated the treatment of mental diseases in general hospitals in England as early as 1869 and Mitchell endeavored to have wards set aside for this purpose in the Royal Infirmary in 1871. Sir John Tuke, Jr., wrote an article on this subject in 1889, and in 1890 the Parish Council opened a ward for the observation and treatment of incipient cases of insanity in connection with the general hospital at Glasgow. The London Hospital now has clinics for nervous and mental diseases. There is also an out-patient department for the same purpose in St. Thomas' Hospital. The Edinburgh Dispensary and the West Riding Asylum at Wakefield have also established clinics for mental cases. La Charité Hospital of the University of Berlin has 160 beds for use in connection with its psychiatric clinic. In Paris, in 1660, Parliament directed the establishment of two wards for the care of the insane at the Hôtel Dieu. If after several weeks the patients were not cured, they were to be removed to the Salpêtrière or to the Bicêtre. The Pennsylvania Hospital, at Philadelphia, treated mental diseases in 1752, and the Philadelphia Hospital probably as far back as 1735. Both of these, however, afterward established separate departments for the insane, who were removed from the general hospital wards. The New York Hospital, which admitted the insane in 1791, established a special separate department for them in 1821.

Dispensaries and Out-patient Treatment.—The necessary attention which incipient cases require should be encouraged and undertaken primarily by the general hospital. This can be done to great advantage by dispensary or out-patient treatment. It is here that a field, little developed in this country, as far as mental diseases are concerned at least, is open for cultivation, with every indication that results can be attained that have not been approached by any other method. With proper encouragement the public can be brought to a realization of what is to be accomplished by early study and advice in mental affections. The functions which have been very properly assumed by charitable organizations and societies for mental hygiene should be largely delegated to the out-patient departments of our general hospitals, and these great forces for promoting public health should coöperate. Such agencies can educate the public and encourage consultation with medical officers connected with the psychiatric clinics and dispensaries. Many of the persons who have been subject to previous attacks and are thoroughly conversant with the initial symptoms which characterize their disease

would thus be afforded an opportunity to place themselves subject to expert advice and assistance. Friends or members of the family of the patient would also be given an opportunity to consult competent physicians regarding the management and control of incipient cases or those subject to a recurrence of attacks. The surprisingly large number who voluntarily apply to institutions for commitment or treatment shows that many would take advantage of such an opportunity if it were offered. There are frequently persons who do not require a protracted residence in a hospital but who would obtain inestimable benefits from competent medical supervision. From the dispensaries or out-patient departments cases needing a more extended and careful observation or a brief course of treatment might well be sent to psychopathic hospitals. These may be conducted in connection with either general hospitals or institutions for the insane or made entirely separate under municipal supervision and control.

As an illustration of the results to be obtained, Pavilion F, of the Albany, New York, Hospital may be cited. A report of the work of this institution shows that in six years 1038 cases were received, only 183 of which were subsequently committed, 765 being able to resume their former avocations without any other than general hospital treatment. The report of the work of Pavilion F shows that in a total of 1855 cases, 469, or over 25 per cent., suffered from alcoholism or some drug addiction, 487, or over 26 per cent., from chronic mental diseases, organic brain diseases, general paresis, or epilepsy, while 655, or 35 per cent., were cases of the acute and curable class. About 14 per cent. were psychoses dependent upon uremia, neurasthenia, hysteria, tuberculosis, and traumatism.

Cornell University, New York University, the Bellevue Hospital, the Vanderbilt Clinic, Post-Graduate Dispensary, the Roosevelt Hospital, and the Neurological Institute of New York all conduct either dispensaries or clinics for the treatment of mental diseases. Of the New York State hospitals for the insane, the St. Lawrence State Hospital, at Ogdensburg, and the Long Island State Hospital, at Brooklyn, have instituted dispensaries.

State and Special Hospitals.—In 1906 the Legislature provided for the erection and operation of a State psychopathic hospital in connection with the University of Michigan. This institution, under the direction of a board of trustees, is in the immediate charge of a medical director and has a capacity of about 40 patients, with two wards for each sex. It has been in close touch with the various State hospitals for the insane and has coöperated actively with them. During a period of four years 568 patients were admitted, of which number 91 were voluntary. Of the admissions during this time, 114 were cases of dementia præcox, 130 of manic-depressive insanity, 49 of hysteria, 29 of psychopathic conditions, 46 of general paralysis, 15 were not insane, 14 were cases of unclassified delirium, 27 of alcoholism, 14 of paranoid conditions, 14 of involution melancholia, and the remainder of miscellaneous and unclassified psychoses. Hysteria and psychopathic conditions con-

stituted 13.5 per cent. of the admissions. In 59 per cent. of the cases where a proper history could be obtained there were evidences of heredity. During four years 79 cases were discharged recovered and 126 improved. The highest percentage of recoveries occurred in delirious states, alcoholic conditions, and hysteria. Less than one-half of those discharged remained in the hospital longer than three months and the great majority only about two months; 37.7 per cent. were sent to the State institutions for the insane. It should be remembered that patients are admitted from all parts of the State. It would seem reasonable to assume that such a hospital represents a large saving in preventing many persons that come under early observation and treatment from becoming public charges by restoring them to health and enabling them to resume useful occupations. Incidentally it affords a large number of medical students an opportunity, which they would not have otherwise, of familiarizing themselves with a branch of medicine of which the general practitioner is only too ignorant as a general rule.

The treatment of patients in psychopathic wards connected with general hospitals or medical schools also guarantees accessibility to excellent surgical care and the supervision of experts and specialists along other equally important lines of treatment. Every city of any considerable size should have a psychopathic ward in connection with at least one of its general hospitals with well-equipped dispensaries for the treatment of mental as well as of nervous diseases. Our large cities would derive great advantage from the establishment of psychopathic hospitals which should be used for the care of patients pending commitment and for the observation and treatment of doubtful cases as well as those requiring only a brief residence. These institutions should be under the direct control, if not management, of State boards intrusted with the supervision of the insane. If organized as suggested, they would possess all of the features of reception hospitals for the classification of cases for admission to institutions.

The fact that 46.2 per cent. of the first admissions to the New York State hospitals in 1910 were of foreign birth would suggest a careful investigation of all cases admitted to psychopathic hospitals and dispensaries, with a view toward reporting aliens to the proper public officials for possible deportation. One of the provisions of the Federal law regarding deportation of insane aliens is that they may be sent back within three years of the date of their admission to the country when suffering from forms of insanity due to causes existing prior to landing. This places special responsibility upon all persons connected with institutions which bring them into contact with incipient cases where there is such a great possibility of lightening the burden assumed by the State in caring for a large percentage of persons of foreign birth.

Where State hospitals are available they may well perform all the functions of the psychopathic hospital for cities and they must necessarily do so for the communities of smaller size. General hospitals should establish psychopathic wards in a part of the institution which is well removed from public scrutiny and the noises of the street. More than

one ward is required, as the noisy, destructive and violent must be separated from the quiet, tidy, mildly depressed, and convalescent cases. Special care is to be provided for the suicidal and bed patients. These facilities should all be at hand, as many will necessarily be admitted who require care in State hospitals and are entitled to proper attention until they can be transferred. Numerous single rooms are desirable for the disturbed class. Apparatus for the prolonged bath treatment and other forms of hydrotherapy should be provided. The organization and equipment of psychopathic hospitals should be along lines similar to those adopted for reception buildings for institutions for the insane.

A feature of the psychopathic hospital, too often neglected, is the provision of ample opportunities for out-of-door exercise. This should receive careful consideration in the choice of a site for such an institution, as there is no more important factor in the care of incipient cases. This form of treatment of mental diseases has not received the attention it properly deserves. The value of fresh air in cases that are naturally adapted to the needs of the psychopathic hospital cannot be overestimated.

In many general hospitals nervous diseases must necessarily be cared for in the wards intended for medical cases. In the larger institutions, however, special departments are available and these should be equipped with complete hydrotherapeutic outfits, with facilities for mechanotherapy, including massage, and devices for electrical treatments. Solariums should be provided and the patients should have the advantages of fresh air and sunshine.

A landmark in the history of advanced methods of caring for the insane in this country is the establishment of the Henry Phipps Psychiatric Clinic at Baltimore. In addition to the functions of a psychopathic hospital it combines the features of a research and teaching department. The arrangement of the building will show the scope of the work planned. It is intended for about 100 patients and is to be a five-story structure. In the basement there will be an out-patient department with class rooms for the instruction of physicians and students as well as rooms for hydro- and mechanotherapy. On the first floor there are to be observation wards for 14 persons of each sex, together with laboratories, and reception and examination rooms. The second floor is intended for teaching purposes and will have intermediate wards for 15 persons of each sex with rooms for seclusion. Research and laboratory departments, occupation and employment rooms, and the convalescent wards are planned for the third floor. On the fourth floor there will be single rooms and suites for private patients, and on the fifth floor roof gardens, exercising spaces, a gymnasium, and an assembly hall. Efforts should be made toward the organization of such institutions in every State in the Union.

Private Sanitaria.—A well-known factor in the care of mental, and particularly nervous, diseases is the private sanitarium. There are at the present time about 100 of these in New York State alone. These

accommodate the great majority of patients who can afford to pay for treatment. The advantage possessed by these institutions, aside from the pleasant surroundings they offer, is the special nursing which can be devoted to the individual case. The sanitariums, as a rule, admit only nervous and general medical cases. They are usually equipped with elaborate hydrotherapeutic apparatus, and make a specialty of bath treatments, electrotherapy, massage, mechanotherapy and out-of-door exercise.

The private hospitals for the insane, of which there are twenty-three operating under licenses required by the State of New York, care for over 1000 patients at the present time. Many of these are voluntary. The statistics of these institutions for 1910 show that there were 252 first admissions and 88 readmissions; 105 were reported as recovered, 57 as much improved, 93 as improved, and 2 as not insane out of a total of 508 discharges during the year. The laws of the State very properly provide that these institutions shall be licensed by the State Hospital Commission and operated in strict compliance with its rules and regulations. The law, furthermore, requires frequent visits by the Commission and by a medical inspector. They are thus, as they should be, under careful supervision.

Hospital Statistics.—The number of insane is constantly becoming greater as a consequence of our growth in population, the influx of aliens, and numerous other important factors. On October 1, 1911, there were in New York 32,250 insane in the State hospitals and 1061 in the private institutions, or 33,311 in all. In twenty years the number of patients per 100,000 of the population changed from 259 to 358. From 1890 to 1900 the increase was 26 per cent., and it advanced from 327 in 1900 to 358 per 100,000 in 1910, or at the rate of 9.5 per cent. In 1910 there was one insane person to each 279 of the total population. The number of patients cared for by the State of New York varied from 16,006 in 1890 to 32,658 in 1910, an increase of 104 per cent. During the same period the gain in the population of the State was 51.9 per cent. From 1890 to 1900 the increase in the number of insane was from 16,006 to 23,778, or 48 per cent., while the growth in population was at the rate of 21 per cent. From 1900 to 1910 the number of patients changed from 23,778 to 32,658, or 37 per cent., while the population of the State increased 25 per cent. These figures will show that the burden of the State in caring for the insane is a large one. Only about 8 per cent. of these are reimbursing patients, so that the economical and at the same time efficient care of the insane constitutes an important problem.

ORGANIZATION AND MANAGEMENT OF HOSPITALS

Size.—Although there has been much discussion as to the proper size of a hospital, this is a problem rather of theory than of practice. The large and constantly increasing number of patients who must be cared for

by the State renders it absolutely essential to provide for them in comparatively large institutions. The necessity of economy is well illustrated by the fact that the total disbursements in New York State in one year amounted to $8,157,816.64, of which amount $6,068,261.73 was for maintenance of insane patients alone. The organization of the individual institution, therefore, constitutes a most important question.

Location of Institution.—In referring to the organization and management of hospitals for the insane it is proper to call attention to a question too often slighted—the location of the institution. Nothing can be more important. It is usually desirable to choose a site which is somewhat removed from great centres of population for various reasons. The cost of land must be considered as well as the necessity of caring for the insane where they will not be subjected to the noise and excitement of the city and where grounds are available for farming and gardening. This not only affords occupation for the patients but materially reduces the cost of maintenance. Other points worthy of mention are facilities for reaching the institution and ready communication with railroad centres by means of street cars or other conveyances. The hospital must be accessible to relatives and friends who wish to visit patients, and it must be remembered that employees cannot be obtained at too great a distance from a village or city. This is a point which is often overlooked until it is beyond remedy, and which is not so insignificant as it appears. The necessity of being within reach of supplies which must be brought to the hospital should be kept in mind. The suitability of the land for building purposes is of primary importance, the fertility of the soil being a secondary consideration. An unlimited supply of water, the source of which is under the control of the hospital authorities, should be insisted upon. Sewage disposal must be provided for. The institution, if of sufficient size, can afford to maintain a plant of its own. The hospital site should be one which can be drained without too great expense. Climatic conditions are of importance. Under any circumstances the location should be such as to guarantee the proper hygienic surroundings.

Research Work.—It will be conceded that it is a part of the duty of each State to encourage the study of mental diseases and promote scientific research along these lines so far as possible. It is to such investigations that we owe all of the advances that have been made in psychiatry, and they are, unfortunately, too few. As this work can be carried on only to a limited extent in the individual hospital, for obvious reasons, the maintenance of a special institution for such purposes is indicated. The Psychiatric Institute, conducted in connection with the Manhattan State Hospital in New York City, is an excellent illustration. It has rendered inestimable service in maintaining a high standard of efficiency in the various State hospitals. This is accomplished by frequent courses of instruction in both psychiatry and pathology for the benefit of the assistant physicians. The director of the institute, through this instruction and the medium of conferences held at the various hospitals, keeps in touch with the entire service.

In addition special research is conducted along both psychiatric and pathological lines. Anatomical material is sent from the hospitals for investigation where the indications are such as to require facilities not at the disposal of the various institutions. Frequent publications are issued and they serve to keep the medical officers of the hospitals informed on all topics of interest.

Supervision and Management.—The experience of many years would tend to show convincingly that every hospital should be subject to the supervision and entire control of a medical officer, the business details being delegated largely to a steward. The dual system of management, with a layman as the executive head of the institution and a medical director under his charge, has never been successful. The administration of a hospital, although it often involves great financial responsibility, is essentially a medical problem and will always remain so. The medical interests of the patients, which fundamentally underlie all of the problems of management, cannot properly be subordinated to any other consideration. The custom which has prevailed in some of our States of operating institutions along political lines cannot be too strongly condemned. The medical superintendent should always be a man who has had an extended experience in the care of the insane in large public institutions, as only such a man is fitted to cope intelligently with the questions constantly arising. Nor should he be appointed, as is done in some places, for a term of two or three years. The tenure of office should be permanent, subject, of course, to the proper performance of the duties pertaining to the position. The most efficient administrative officers of our large hospitals are usually men who have had the advantage of many years of experience.

The details connected with the management of any institution for the insane are such as to require an assistant superintendent or first assistant physician who must give practically all of his attention to administrative work. In smaller hospitals the superintendent, or the first assistant physician, can devote at least a part of his time to psychiatry. In larger institutions, however, this is not always possible, and it is highly desirable that one man who has had opportunities for special training should actively supervise the psychiatric and medical work of the staff. This need has been recognized in the New York State service by the creation of the position of Director of Clinical Psychiatry. Under any circumstances the physician charged with this duty should be afforded every possible opportunity to keep himself abreast of the times in all of the departments of medicine. He should be expected to conduct staff meetings, the value and importance of which cannot well be exaggerated. All new admissions, as soon as they have been thoroughly examined, both mentally and physically, and their cases reviewed, should be brought before the staff. The number of presentations required will, of course, materially affect the number of staff conferences which will be necessary. Every member of the staff should attend at least three during the week. If possible every case showing any unusual or interesting features

should be described in full. When the admissions are numerous only summaries can be read. In any event they should all be reviewed by the director of psychiatry before presentation. The symptoms should be thoroughly discussed and the final diagnosis agreed upon. Various members of the staff, including the director of psychiatry, should occasionally read papers on topics of interest and prepare abstracts of current literature.

Medical Staff.—The medical staff should include a sufficient number of senior assistant physicians, assistant physicians, and internes to insure the proper performance of the duties connected with these various positions. The short-sighted policy, too often made necessary, perhaps, by inadequate funds, of not offering a sufficient compensation to medical officers, has resulted in rendering it extremely difficult to induce well-equipped physicians to enter the insane hospital service. It has followed that many desirable men find greater inducements to enter the government service or private practice. The salaries offered for positions on the staff of a State hospital for the insane should be such as to attract well-trained and well-qualified men who will feel that it is worth their while to devote their lives to the work. Some inducements must be offered or they cannot be retained in the service, and the frequent changes which experience shows must be expected are greatly to be deplored.

The proper care and gynecological treatment of the female patients render the presence of at least one woman physician practically indispensable.

Recent graduates should be encouraged to connect themselves with hospitals as medical internes for the purpose of preparing them to assume the higher staff positions, and in the case of men who do not expect to attach themselves permanently to the service, to aid in disseminating a better understanding of mental diseases and the hospital methods of caring for the insane among those who are to devote themselves to the general practice of medicine. The greatly increased number of practitioners who have served as internes or who have been at some time on the staff of a hospital for the insane leads to a much better realization of the needs of the institutions by the profession generally and does more than anything else to recruit the number of properly qualified examiners in lunacy, which is, unfortunately, far too small.

Training Schools.—An adjunct to every large institution for the insane, now recognized as essential, is the superintendent of training schools. For many years the work was intrusted to employees whose duties were purely custodial, to say the least, and who had no training. The education of properly qualified nurses and attendants is now looked upon as one of the most important functions of our hospitals. The modern training school conducts a course of theoretical and practical instruction which covers at least two years. Theoretical instruction by members of the staff is given in anatomy, physiology, hygiene, ventilation, ethics, bacteriology, therapeutics, materia medica, bandaging,

practical nursing, dietetics, medical and surgical nursing, obstetrical and gynecological nursing (for women), genito-urinary nursing (for men), and the care of nervous and mental diseases. Practical instruction is given in bed-making, the study and observation of symptoms, baths, counterirritants and local applications, urinary examinations, douches, enemata, lavage and gavage, surgical dressings, emergencies, the care and preparation of records and charts, the surgical care of patients, hydrotherapy, etc. During the course of instruction the attendants who are enrolled should have an opportunity to actually serve in the various departments of the hospital for a definite length of time. They should be assigned in turn to the acute or receiving service, the wards for depressed and suicidal patients, the buildings for the destructive, noisy, and violent, the infirmaries and the medical and surgical services. Experience in the operating room, the convalescent wards, the laboratory, the tubercular pavilions, and the wards for contagious diseases is equally necessary. Attendance at autopsies should be recommended and practical instruction in hydrotherapy required. Special instruction regarding night nursing is essential. All attendants should be thoroughly familiar with the care of epileptics and with every aspect of the care and treatment of the insane. This has long ceased to be custodial, and is now conducted along strictly hospital lines.

Internal Administration.—The general internal administration of an institution for the insane is largely a question of size and the facilities at hand. In discussing the organization of a State hospital we may assume that it can accommodate 2000 patients or thereabouts. Every such institution should have an acute or reception service, or psychopathic building, however designated. This should be more or less isolated, but in a convenient and readily accessible location, with a capacity of at least 100 patients. Where there is a population of 3000 or 4000 to consider, two such buildings are advisable, one for men and one for women. These should be conducted as reception services for the admission and subsequent classification of all new patients. In smaller institutions they must perform all of the functions of the psychopathic hospital. They must, as a matter of fact, maintain this relation more or less to any community, until psychopathic hospitals are much more generally established than at the present time. Assuming such a building to be designed for the accommodation of 50 male and 50 female patients, three wards for men and three for women are recommended. Four wards for each sex would be highly preferable — a small one for the reception of new patients, one for the depressed and suicidal cases, one for the noisy and violent, and one for the quieter convalescent class. The noisy and violent should be provided for in an annex, separated from the main part of the building by a corridor and far enough away to prevent the disturbances of other patients. The general arrangement should consist of day rooms and dormitories, with numerous small rooms and inclosed verandas on each floor. Where the location of the hospital is such as to render it necessary the outpatient department of the institution may be in this building. It should,

however, when possible, be conducted in a neighboring city where it is more accessible to the surrounding population. The basement may be fitted up with a gymnasium, recreation room, library, and reading rooms.

The central or administrative part of the building should contain the medical office, reception rooms for visitors, drug store, laboratory, stenographer's office and an examination room for patients with provisions for eye, ear, nose, throat, and dental work. The medical officer in charge and at least one other physician should reside in the building. There should be a complete hydrotherapeutic equipment and facilities for proper electrical treatment and mechanotherapy. A large and commodious place for staff meetings is indispensable. The rooms generally should be free from angles and the lighting apparatus well out of reach, with no exposed pipes or fixtures which can be used in any way for suicidal purposes. One of the senior physicians should have immediate charge of the service, with two or three assistants and one or two competent stenographers, all under the supervision of the director of psychiatry. To these wards all the new cases are to be admitted for thorough examination and careful study. The psychiatric research of the smaller institutions must be done very largely in this place under the director of psychiatry or the officer acting in that capacity. The building should accommodate, if possible, all of the acute and recoverable cases until they are discharged or transferred to convalescent or parole wards in other services. The psychopathic hospital should be devoted largely to the care of manageable cases of dementia præcox, hysterical, neurasthenic, autotoxic and infective-exhaustive psychoses, acute alcoholic and other deliria, organic cases requiring thorough study, symptomatic depressions, drug and toxic psychoses, involution melancholia, in short, to all forms of acute psychoses of the recoverable type and all conditions requiring exhaustive investigation or active treatment. In these wards ample facilities for the association tests and psycho-analysis are desirable. All senile cases, epileptics, imbeciles, cases of constitutional inferiority, paranoia, general paresis, chronic nervous diseases, chronic alcoholism, deteriorated, and incurable cases of the type requiring prolonged hospital residence or purely custodial care should be transferred as soon as possible to other departments.

Examination of Patient.—The first procedure on the admission of a patient to the hospital is, of course, a thorough examination, both mental and physical, and the future conduct of the case and all conclusions which may be formed as to its outcome depend entirely on the accuracy with which this work is done. It is important that a definite plan be adhered to, not only to insure a complete insight into all the features of the case, but for uniformity of records which will afford a basis for comparison and insure the collection of valuable statistical data.

Form of Examination.—The following brief outline will illustrate the methods in general use:

FAMILY HISTORY.—This must be comprehensive and cover all branches of the family, direct, collateral, and consanguineous. It should include some reference to the normal mental characteristics. Special attention is to be devoted to inquiries regarding the existence of insanity, hysteria, epilepsy, alcoholism, nervous diseases, syphilis, imbecility, idocy, criminal tendencies, sunstroke, drug habits, eccentricity, and other defects or peculiarities either physical or mental.

HISTORY OF THE PATIENT.—This should show the date and place of birth, diseases existing in childhood, education, the use of alcohol or drugs, sexual habits, and occupations. There should be a complete history of the physical condition and of previous illnesses, with special reference to any previous psychoses. A thorough understanding of the normal mental make-up of the individual is very important.

ONSET OF PSYCHOSIS.—This should embody the patient's description of his illness from its very beginning, with the causes which are ascribed and the history of its development.

PHYSICAL EXAMINATION.—*General appearance,* showing the weight, height, malformations, deformities, scars, injuries, bruises, color and condition of the skin, hair, eyes, complexion, condition of the mucous membrane, evidence of syphilis, bodily temperature, etc.

Examination of Nervous System: Facial expression, subjective sensations, vertigo, weakness, headache, general or localized sensations of pain, etc.

Eyes: General type, conjunctiva, arcus senilis, prominence or protuberance of eyeball, ptosis, lagophthalmos, nystagmus, strabismus, diplopia, hemianopsia, size and form of the pupils, reaction to light, accommodation, defects of vision, color blindness, field of vision, ophthalmoscopic examination, etc.

Ears: Deformities or abnormalities of the external ear, discharges, defects of hearing, conduction, tinnitus, vertigo, otoscopic examination.

Taste: Test anterior two-thirds and posterior third with solutions of sugar, acetic acid, quinine, and salt. Protrusion of tongue, swallowing, etc.

Smell: Test nostrils separately with peppermint, cloves, weak ammonia, etc.

Tactile Sensibility: Blunt and sharp objects to all parts of the body.

Localization of Touch.

Sensibility to Pain.

Temperature Sense (heat and cold).

Sense of Position and Stereognostic Sense.

Subjective Sensations: Tingling, numbness, sensation of pins and needles, etc.

Tenderness of Muscles and Nerve Trunks.

Vasomotor and Trophic Conditions: Salivation, seborrhea, pallor, cyanosis, changes in the hair and nails, blushing, dermatographia, temperature of paralyzed parts, atrophy, hypertrophy, etc.

Motor Functions: Motility of facial muscles (laugh, show the teeth, shut the eyes, wrinkle forehead, etc.), muscles of trunk and extremities,

gait, coördination of movements, muscular sense, balancing power, Romberg test, grip, flexor, and extensor movements, fatigue limit of muscular movements.

Reflexes: Superficial—gluteal, cremasteric, abdominal, epigastric, scapular, palmar, plantar; deep—masseteric, elbow, wrist, knee-jerk, tendo-Achillis reflex, ankle and wrist clonus.

Condition of Paralyzed Muscles.

Fibrillary Twitching.

Tremors.

Control of Organic Reflexes.

Convulsions.

Sleep.

Respiratory Organs: Cough, dyspnea, pain, expectoration, respiratory movements, percussion, auscultation, etc.

Circulatory System: Pain, palpitation, dyspnea, heart sounds, outline of heart dulness, pulse rate, condition of arteries, blood pressure, etc.

Digestive and Abdominal Organs: Teeth, mouth, appetite, nausea, vomiting, pain, tenderness, movements of bowels, condition of liver and spleen, gastric analysis if necessary.

Urinary Apparatus and Genital Organs: Urinary examination always to be made.

Summary of Physicial Examination.

MENTAL EXAMINATION.—*Attitude and Manner:* General appearance, adaptation to surroundings, spontaneity of expression and responses, care of person, manner of expression, scope of conversation, rapidity or slowness of speech, coherency, relevancy, unusual productiveness, flight of ideas, confusion, retardation, distractibility, hallucinations, delusions, illusions, stereotypy, mannerisms, catalepsy, resistiveness, violence, suicidal tendencies, etc. The *stream of thought* should be illustrated by a stenographic report of the patient's conversation and answers.

Moods and Affects: Excitement, sadness, depression, anxiety, fear, perplexity, irritability, constraint, indifference, apathy, exaltation, suggestibility, etc.

Attention and Retention.

Orientation for Time, Place, and Person.

Grasp of Surroundings.

Memory for Immediate, Past, and Remote Events.

Retention of School Knowledge.

Calculation.

Reading, Writing, and Test Phrases.

Insight.

Summary of Mental Examination.

Differential Diagnosis: All of the conditions which should be considered are discussed with a resumé of the reasons upon which diagnosis is based.

Association Tests.—In the study of hysteria and the psychoneuroses, or in dementia præcox, and often as an adjunct to psycho-analysis, the

association tests are frequently necessary. They constitute a valuable means of diagnosis as well as furnishing an indication for treatment. From one to two hundred words are used, consisting of nouns with verbs interspersed. The examiner should be seated behind the patient so as not to distract him and the test conducted in a quiet, dimly lighted room for the same reason. The patient is to repeat the first word or idea suggesting itself to him after hearing each test or stimulus word. The time elapsing between the pronunciation of the test word and the answer—the reaction time—should be determined by a stop watch. The entire procedure is repeated and the results again recorded. The following list is suggested for use by White:

1. Head.	31. Sympathy.	61. To quarrel.	91. Hay.
2. Green.	32. Yellow.	62. Goat.	92. Quiet.
3. Water.	33. Mountain.	63. Large.	93. Scorn.
4. To prick.	34. To play.	64. Potato.	94. To sleep.
5. Angel.	35. Sail.	65. To paint.	95. Month.
6. Long.	36. New.	66. Part.	96. Colored.
7. Ship.	37. Custom.	67. Old.	97. Dog.
8. To plough.	38. To ride.	68. Flower.	98. To talk.
9. Wool.	39. Wall.	69. To strike.	99. Carriage.
10. Friendly.	40. Stupid.	70. Box.	100. Sky.
11. Table.	41. Volume.	71. Wild.	101. Straw.
12. To carry.	42. To despise.	72. Bright.	102. Baby.
13. Insolent.	43. Teeth.	73. Family.	103. To lie.
14. To dance.	44. Correct.	74. To wash.	104. Blood.
15. Lake.	45. Crowd.	75. Cow.	105. Duty.
16. Sick.	46. Book.	76. Stranger.	106. Bed.
17. Proud.	47. Unjust.	77. Luck.	107. To rent.
18. To boil.	48. Frog.	78. To tell.	108. Sorrow.
19. Ink.	49. To cut.	79. Hesitation.	109. Mirror.
20. Angry.	50. Hunger.	80. Narrow.	110. Prison.
21. Needle.	51. White.	81. Brother.	111. Knee.
22. To swim.	52. Ring.	82. To harm.	112. To live.
23. Journey.	53. To listen.	83. Stork.	113. Change.
24. Blue.	54. Pencil.	84. False.	114. Barn.
25. Bread.	55. Woods.	85. Anxiety.	115. Snake.
26. To threaten.	56. Apple.	86. To kiss.	116. To uncover.
27. Rich.	57. To meet.	87. Fire.	117. Policeman.
28. Lamp.	58. Law.	88. Dirty.	118. Wagon.
29. Tree.	59. Love.	89. Door.	119. Judge.
30. To sing.	60. Glass.	90. To choose.	120. Night.

The practical and important value of the association test is the uncovering of concealed and partially or entirely submerged complexes in the study and treatment of hysteria and the psychoneuroses. A complex may be described as an idea or a group of ideas associated with an emotional disturbance. In hysteria the repression is always the submersion of a painful or unpleasant idea, usually connected with the sexual life. Freud found that if the repressed or painful idea could be uncovered by psycho-analysis, the hysterical symptoms would disappear and the condition be alleviated. In performing the association test the presence of a complex is suggested by a delay in the reaction time, the peculiarity of the reaction, failure to reproduce or remember the reaction on repetition, or the recurrence of the same idea in subsequent reactions to other words. In psycho-analysis, which is the

analytical study of the content of a psychosis, all of these clues are followed and this constitutes the most important method of dealing with hysteria and psychoneuroses at the present time. This work should be thoroughly understood by the staff of a psychopathic hospital or reception service.

Study of Dreams.—A valuable adjunct to these methods as shown by Freud is the study of dreams, which, according to his theories, represent the realization of repressed wishes, more or less disguised in their fulfilment. These investigations can also be conducted in the dispensary of a general hospital or in the out-patient department of an institution for the insane.

DETAILS OF HOSPITAL TREATMENT

We have become accustomed to pointing with pride to the fact that Pinel removed the shackles from the insane in the latter part of the eighteenth century. This was indeed a noteworthy event. Unfortunately, however, he did not abolish the use of restraint, and strait jackets, strong sheets, wristlets, anklets, cuffs, straps, and other mechanical appliances have been in vogue for centuries.

Hydrotherapy.—It is only within the last few decades that the more humane hydrotherapeutic methods of controlling excitement have come into general use. The most important of these is the prolonged bath. In this procedure the patient is placed in the water in a hammock which is attached to the sides or ends of the tub and covered by a sheet fitting closely around the neck in such a way that only the head is exposed. The water is admitted through a mixing chamber which is governed by a mechanical contrivance under complete control, permitting the careful regulation of the temperature as shown by a thermometer. This usually ranges from 96° to 99° F., and is watched carefully by the attending nurse, who should never be absent under any circumstances during the bath. A special apparatus permits the escape of excreta from the tub, so that it is not necessary to remove the occupant on account of a bowel movement. Patients are allowed to remain in the bath anywhere from a few hours to several days, depending on the nature of the case. The skin is usually subjected to an application of oil or an ointment to prevent maceration. The most important indication is to prevent variations in the temperature of the water and avoid scalding or chilling the patient. The continuous warm bath is at present one of the most reliable means at our disposal of quieting excitement in the insane.

When the bath treatment is not available or has failed in its object, or for some special reason is not indicated, hot or cold packs may be resorted to. The patient is first inclosed in a wet sheet, wrung out in hot water, and then securely wrapped in a dry blanket. An ice-cap is usually placed on the head. The sheet may be immersed in hot or cold water or a dry pack may be used. Some are benefited by a hot

and others by a cold pack, and frequently go to sleep during the process. A warm bath usually gives the best results in cases of excitement.

A hydrotherapeutic outfit is now a feature of every properly equipped psychopathic or reception hospital. The hot-air bath, the rain, needle, fan spray, jet, and Scotch douches and the sitz bath are all advocated. In connection with the bath a rest room and beds for massage are indispensable.

Aside from the therapeutic effects of bath treatments in the wards, much can be accomplished along the line of elimination or stimulating and tonic treatment. For alcoholic, drug, and toxic cases much benefit can be derived from the hot-air baths, while various other combinations of treatment give excellent results in the depressed and debilitated or neurasthenic cases. Patients vary in their response to hydrotherapy, and in the neurasthenic and debilitated cases care must be exercised to avoid too vigorous treatment. The hot-air bath is given at from 180° to 190° for from three to ten minutes, the circular douches from 100° to 90° for from one-half to one minute at from 15 to 35 pounds' pressure, the fan douche from 85° to 56° for from ten to thirty seconds at from 15 to 25 pounds' pressure, the jet douche from 75° to 56° for from ten to thirty seconds at from 15 to 30 pounds' pressure, and the Scotch douche at 110° alternating with 60° for from one-half to three minutes at from 15 to 30 pounds' pressure. The bath apparatus should be under the charge of a competent and experienced attendant. The treatment should be prescribed by a physician, and not left, as is sometimes done, to the judgment of the attendant in charge of the bath. A nurse skilled in massage should always be present, as the two forms of treatment can practically always be combined to advantage. Much can be accomplished by hydrotherapeutic treatment in alcoholic and other deliria, the toxic psychoses, the infective-exhaustive cases, some cases of dementia præcox, occasionally cases of involution melancholia, manic excitements, and in the hysterical and neurasthenic psychoses.

Great care should be devoted to the diet of the patients in the psychopathic or reception service, and there should be every facility for special food preparation under the direction of a physician.

A part of the equipment of the acute or psychopathic wards is some form of apparatus for electrical treatment. Although electrotherapy is of comparatively little value in the acute psychoses, it should be available and is often of great importance in neurological cases. Both the galvanic and faradic currents are useful, and both are adapted to the treatment of paralysis when the functions are looked upon as recoverable. Electricity has been used to advantage in treating neuralgia and rheumatic complaints such as muscular rheumatism, lumbago, and sciatica. Headaches are sometimes benefited. The static current has been recommended especially in the treatment of hysteria and neurasthenia.

Massage.—Massage is a part of the nursing treatment which should be available in every psychopathic hospital, and is particularly useful

when neurological cases are to be considered. In hemiplegias; in chronic rheumatism, particularly of the muscular variety; in infantile paralysis, and many other neurological cases it is of great value. It is especially useful in the bed-ridden cases of dementia præcox, in organic cases, in the polyneuritic conditions, tabes and other nervous diseases, as well as in the infective-exhaustive psychoses, the depressive forms of manic-depressive insanity, and the hysterical and neurasthenic cases.

Environment.—The construction of the reception building should be such that the patients can spend a large part of their time on the porches and verandas. For the same reason the location should allow them to be out of doors practically all day, and the grounds of the institution should be laid out with this in view. Many patients can be kept outside during favorable weather, and given the benefit of fresh air and pleasant surroundings. Flower beds, gardens, and walks are essential, and space available for recreation indispensable. Opportunities should be offered for base-ball, hand-ball, croquet, and any and all other out-of-door sports and diversions which can be indulged in with safety to the patients themselves. Walks, drills, calisthenics, and other exercises are of great benefit to patients who cannot be induced to take part in games. Exercise in the fresh air is more beneficial than drugs in the treatment of many cases.

The wards of the psychopathic hospital should be made attractive and pleasant in every way consistent with the nature of the cases cared for in such a building, and with due regard to the danger to be anticipated from suicidal and homicidal patients. Efforts to create an interest in some form of amusement, reading, games, or, better still, in some useful occupation, can be confidently expected to be productive of markedly beneficial results. These indications can only be met successfully by well-trained and intelligent nurses who will endeavor to promote the welfare of those intrusted to their charge. Employees engaged in the care of acute and recoverable cases require competent supervision and instruction by persons who thoroughly understand the work.

Treatment should be largely dietetic, hygienic, tonic, and educational, in the psychiatric sense of the word, with careful attention to hydrotherapy, massage, and out-of-door exercise rather than drugs. Hysteria and the psychoneuroses necessitate a special line of procedure based on the results of psycho-analyses. The control of excitements by chloral, bromides, and opium, the induction of sleep by means of hypodermics, the application of mechanical restraint to the violent, and the purely custodial care of the insane generally are passing more and more into disuse. It is not to be assumed that drugs have been entirely discarded, but rather that they have been relegated to a comparatively unimportant position in our armamentarium. There are, of course, occasional cases which will not yield to hydrotherapy, and are given hypnotics or sedatives. These are usually resorted to after other means have been tried or are for some reason unavailable. In the markedly deteriorated cases with violence, in epileptic furor, and in uncontrollable excitements of various origin, medication by mouth or hypodermic is sometimes

unavoidable. Trional, sulphonal, paraldehyde, chloral, and chloralamid are still used for their hypnotic effects at times. When necessary to control excitement by hypodermics a mixture of Magendie's solution with the amorphous sulphate of hyoscyamine is preferable to morphine alone or to the unstable hyoscine preparations used formerly. It will be noticed that a tendency occasionally exists on the part of employees to insist on drugs simply to avoid the trouble of properly applying other remedies.

Diet.—An important factor to consider in the care and treatment of the insane is the proper supervision of their diet. This applies not only to bed cases but to those in the dining rooms. It will sometimes be observed that patients eat little or nothing during the course of a meal. This is, of course, something which should be promptly brought to the attention of a physician, but is at times neglected by dining-room employees. The supervisor should always be present when the patients are served, and it is highly desirable that a physician attend if possible. When it is found that a patient is not eating enough or refusing food entirely, he should be offered encouragement by the nurses in charge. A little care on their part is often sufficient to remedy the difficulty. Some patients will eat a proper amount if they are fed by an attendant. Others are occasionally so resistive as to require tube feeding. This should be done by a physician, as accidents sometimes occur, the entrance of food into the trachea being the occasional cause of bronchopneumonia. The esophageal method is to be preferred. A pint of milk, with an egg or two and a little sugar and salt added, should be given at least twice a day.

Distribution of Patients.—The size of our public institutions for the insane renders the care of patients in wards rather than in cottages or small domiciles practically unavoidable. The present tendency in construction, however, is toward the erection of groups of smaller buildings, each group having a central kitchen and dining room. This does away, to a certain extent at least, with the necessity for the enormous structures so common in the past. Unfortunately it is largely an economic problem, owing to the absolute need of caring for large numbers at the lowest cost consistent with modern requirements. Under any circumstances classification should be the object always in view in the distribution of patients. There should be wards or buildings, depending on the type of construction and the size of the institution, for the quiet orderly chronic patients. There is always a considerable percentage of the population of a hospital which must be classified as destructive, noisy, violent, and dangerous. These should be provided for in special departments. Another class requiring separate care, for obvious reasons, includes the untidy, the infirm, feeble, and senile cases. They should have ready access to porches, and all who possibly can should be encouraged to get out of doors when the weather is favorable. A considerable number of helpless, bed-ridden cases of general paresis are to be expected. These require an unusual degree of attention, and the number of bed-sores to be found is usually a

fairly good index of the nature of the care received. Frequent changing of the linen, repeated bathing, and scrupulous cleanliness should be insisted upon. The position of the patient in bed should be varied at intervals, and a careful watch kept for beginning trophic disturbances. Complete dryness of the sheets sometimes necessitates the use of dusting powder, and the skin requires applications of alcohol, alum powders, or ointments. These are largely problems of nursing, and too much attention cannot be devoted to this branch of the work. The seniles must be watched constantly to prevent them from falling in attempting to get out of bed or injuring themselves by wandering about the ward unassisted.

Care of Medical and Surgical Cases.—Every hospital for the insane should have adequate facilities for the care of medical and surgical cases. Better results can be obtained here as elsewhere by centralization and specialization. Cases requiring bed treatment of forty-eight hours or more should be transferred to the hospital ward for the special facilities which can only be obtained there. When the size of the institution is such as to warrant it, separate provision is desirable for surgical cases. At any rate a thoroughly equipped operating room, with all the modern facilities, should always be in readiness in close proximity to the hospital ward. The lighting should contemplate operative procedures which may be necessary at night and the construction should be such as to give plenty of light during the daytime. All of the modern appliances for sterilizing instruments and dressings should be ready for instant use. Etherizing and dressing rooms must be close at hand. The hospital should always be provided with a competent staff of consulting surgeons and at least one gynecologist.

Parole Cases.—In every institution of any size there must necessarily be an extensive force of laborers to care for the roads and lawns, work in the carriage barns, assist the mechanics, and engage in numerous other useful occupations. These patients, as far as possible, should be housed in separate buildings. Some can be permitted the freedom of the hospital grounds, others must be restricted to the wards when not employed. The modern tendency is to grant a parole to every patient who is not suicidal, homicidal, or dangerous for other reasons, and who can be trusted not to leave the hospital premises. It will be found that many wards or entire buildings can be left unlocked with complete safety. Occasionally it is to be expected that patients will wander away or leave without permission, but they usually return or are brought back by officers or friends. Every effort should be made to eliminate the prison aspect of a hospital so far as possible by doing away with the use of bars, gratings, and screens over the windows. It is surprising how unnecessary the use of such restraints is when an effort is made to get along without them. It is largely a question of proper nursing, and some of the private hospitals, where a larger force of employees is available, have entirely done away with the window guards. In the large public institutions such restraining influences are, of course, necessary in caring for the suicidal, homicidal, and dangerous patients,

who take advantage of every opportunity to escape, even under the constant and unremitting attention of nurses.

Convalescent Cases.—The convalescent cases under observation with a view to their subsequent parole or discharge from the hospital may be cared for to great advantage in separate wards. The very fact that a person has reached such a ward in the progress of his treatment often has a wholesome influence on his mental condition. These patients can be allowed to make excursions into the surrounding country, visit neighboring cities, and occasionally go to their own homes, if not too distant, in the practical trial and demonstration of their recovery. It is often possible to obtain employment outside of the hospital, giving them an opportunity to demonstrate their ability to care for themselves. These cases should be under the observation of after-care agents or charitable organizations which devote themselves to a line of humane work which should be encouraged in every possible way. A little supervision and slight encouragement will often enable a patient to readjust himself to his surroundings and take up again his work in the world.

Prevention of Tuberculosis.—Constant care should be exercised in the prevention of the dissemination of tuberculosis. The difficulties of physical diagnosis in the insane can scarcely be appreciated by those not accustomed to this line of work. The deteriorated cases, even in advanced stages of the disease, often do not cough and frequently do not expectorate. In the noisy, violent, and resistive it is exceedingly difficult to make the careful physical examination that is required for an accurate diagnosis. In suspected cases the sputum should be examined, if any can be obtained, for tubercle bacilli. One valuable means always at our disposal is the use of the various tuberculin tests. As soon as the diagnosis can be definitely determined the tubercular cases should be transferred to separate buildings especially designed for the care of this class. This is necessary, not only for the protection of the insane population, including many recoverable cases, but of the nurses, the employees, the physicians, and the visiting relatives and friends. The treatment should follow modern lines. The patients should be out of doors constantly during favorable weather. At the Manhattan State Hospital at Ward's Island, New York City, the tubercular cases have been cared for in tents, where they live both summer and winter, with excellent results. This insures the constant contact with fresh air which is of such great benefit. The State of New York has, at several institutions, provided pavilions for the care of the tubercular insane. These were intended to accommodate 100 patients each and are located at Binghamton, Middletown, and Ogdensburg. The buildings are constructed largely of glass and are provided with verandas of such size that practically all of the patients can be given the benefit of the open-air treatment. The arrangement throughout is such as to render unusual cleanliness comparatively easy. The advanced cases are kept on the first floor and the more able-bodied patients on the floor above. Single rooms are provided

for all who are in the terminal stages. The special treatment is practically all hygienic and dietetic. The number of bed patients is kept down to the narrowest limits and out-of-door life encouraged. The diet consists largely of milk and fresh eggs, which are used very extensively. The tuberculin treatment of the disease has not yet received much attention in institutions for the insane, but it is to be hoped that it will be given a thorough trial, as much has been accomplished by its therapeutic use in the sanitariums in the Adirondack region. Tuberculosis is much more readily curable than is generally supposed. This is demonstrated by the statistics of the Binghamton State Hospital. In 438 consecutive autopsies healed tubercles of a distinct and unquestionable type were found in 14 per cent. of the 372 cases dying from diseases other than tuberculosis. If 14 per cent. of the cases which were not suspected or diagnosticated recovered spontaneously, most of them during their hospital residence, under unfavorable conditions, it is very reasonable to assume that many more could be permanently cured if early treatment was instituted. During the year 1910 there were 2536 deaths in the New York State hospitals. Of this number 321, or 12.6 per cent., died of tuberculosis. In the autopsies during a period of over twenty years at the Government Hospital for the Insane at Washington, D. C., evidences of active tuberculosis were found in over 20 per cent. of the cases. The disease is not limited by any means to the pulmonary tract as is so generally believed. At the Binghamton State Hospital microscopic examination showed the spleen to be involved in 43 per cent., the liver in 45 per cent., the kidneys in 18 per cent., and the intestinal tract in 52 per cent. of the tubercular cases coming to autopsy. Only about 6 per cent. of the cases showed tubercle bacilli in the feces as a result of routine examinations made ante mortem. It is very obvious from the prevalence of this disease and from its protean manifestations that any efforts which will reduce the mortality from this source will very materially lower the death rate of our institutions. The statistics of the St. Lawrence State Hospital would also go to show that the beneficial results following active treatment may lead us to expect improvement in the mental condition of a considerable proportion of the cases.

Epileptic Insane.—The question of separate wards or buildings for the care of the epileptic insane is one which has been discussed. Every institution has quite a large number of these cases. Of the total admissions to the New York State hospitals about 2 per cent. are suffering from psychoses resulting from epilepsy. The presence of these patients has an untoward effect on the acute and recoverable class, and is not beneficial at all to the chronic insane. It has been impracticable to segregate these cases owing to the fact that their psychoses are so exceedingly dissimilar, some being quiet and orderly, while others are characterized by great violence. In States having a large insane population it would be highly desirable to assign the epileptics to one institution where they could receive the special diet and treatment adapted to their needs.

Work as a Therapeutic Agent.—One of the old-established departments of our public institutions for the insane is the hospital farm. It was originally intended largely for economic purposes, with the idea of raising vegetables and farm products which would reduce the cost of caring for the large and increasing population. The farm lands are usually located at some distance from the hospital buildings, and it has been found convenient to build cottages for the residence of the patients who devote their entire time to agricultural pursuits. The value of this open-air life is not to be overestimated, and if the work was carried on more as a means of giving employment to patients who could be benefited by industrial occupations the percentage of recoveries would be very largely increased. The great expenditure which is necessary to maintain these large institutions led to an effort to reduce the number of employees required by utilizing the services of all of the able-bodied patients. It will be surprising to persons not familiar with institution life to know that a large percentage of the labor is performed by patients. They do almost all of the ward work; have practically entire care of the lawns and grounds; assist the plumbers, masons, carpenters, painters, bakers, and blacksmiths; often act as teamsters and render themselves useful in all departments. It finally became apparent that occupation, instituted for purely commercial reasons, constituted one of the most important therapeutic agents at the disposal of the hospital and was responsible for many recoveries.

These observations led to the suggestion of industrial education for the apparently hopeless insane in the chronic wards. This is now a well-recognized method of treatment, and many institutions employ persons who devote their entire time to the work. Excellent results have been obtained in the New York State institutions at Rochester, Buffalo, Middletown, Ogdensburg, Kings Park, Poughkeepsie, and New York. It has been found that many of the chronic insane, particularly the apparently deteriorated cases of dementia præcox, can be greatly benefited by systematic reëducation, beginning with the simplest drills and calisthenics, followed by more advanced courses of instruction until they finally become interested in some definite form of occupation and employment. This is almost always accompanied by a corresponding improvement in the general mental condition, terminating often in a complete recovery. Dr. E. H. Howard, in a recent annual report of the Rochester State Hospital, gives the following account of what was accomplished in that institution with cases of dementia præcox:

"This year an earnest endeavor has been made to find out what could be done with this class of mental cases along the lines of reëducation, and in January last a school was started with 12 patients, whose mental deterioration has been of from three to ten years' duration. These cases were careless about their appearance, apparently indifferent to their surroundings, also apathetic, and spent most of their time in idleness. At first it was necessary to stimulate their activities, and to do this a basket-ball was made use of, and they were taught to catch

the ball and then throw it back. This was a slow process, but was successful. They were then taught to march, dance, play games, and to sing. All this took time, but every one in the class was taught all these things.

"Gymnasium apparatus was put in use, and is a source of amusement as well as benefit to all. Sewing, fancy work, basket-weaving, and rug-making are features of the school. Miss Brown, who teaches basketry at the Mechanics' Institute, gives her services for one afternoon a week to this class. The class meets daily, except Sunday, from 9 to 11 A.M. and from 2 to 4 P.M. All those in the school are much neater in their personal appearance, more active, and show an interest in their work. Their mannerisms are not so apparent, and we can say that our efforts in this direction have not been without result. One of the chief difficulties, however, is the fact that we cannot, as yet, provide a separate ward for these cases, and our experience has shown that while these cases do so well in the school room, they fall back into their old ways when put back in large wards. If small wards could be provided for this class of patients and they could be kept from contact with well-advanced cases, we are positive much more could be accomplished with them.

"The ideal method would be to have small cottages provided to accommodate 25 cases of this class, where the home life would be a prominent feature, and with proper nurses so that individual care could be given them. The present custom of assigning cases of dementia præcox to large wards, where it is impossible to give them individual care, is not for the best interest of the patient. From our experience with these cases we are convinced that much can be accomplished by segregating them in small wards or cottages and providing sufficient nurses, who will take a personal interest in each case and try to teach them methods of right living. Then with the assistance of the school, with its different industrial, educational, and recreational methods, they can be improved so that many can be cared for at home, and the others can be taught to be useful about the hospitals.

"As this class of patients composes the greater part of the hospital population and tends to become idle, untidy and destructive, and so-called chronic disturbed cases, more effort should be put forth at least to improve them, so that they will be able to be of assistance to the hospital. If this line of treatment is begun as soon as the case is diagnosticated dementia præcox, and followed up faithfully, in a few years many of the chronic disturbed wards may be replaced by wards of neat, well-behaved, and industrious patients."

Schedule for Occupation Classes.—The following is the schedule in use at the Long Island State Hospital for the occupation classes.

REGULAR DAILY SCHEDULE

8.30 to 10.30 A.M.	Occupation class, hall 5.
9.30 to 10.30 A.M.	Men's calisthenic class, amusement hall.
10.30 to 12.00 M.	Women's calisthenic class.
1.00 to 2.00 P.M.	Outdoor exercise.
2.00 to 4.00 P.M.	Fancy work class, sewing room.
2.00 to 4.00 P.M.	Occupation hours in all wards.
2.00 to 5.00 P.M.	Occupation class, hall 5. (Work varied according to schedule given below.).

WEEKLY SCHEDULE

Monday,	2.30 to 4.30 P.M.	Hall 5, phonograph concert.
	3.00 to 5.00 P.M.	Basketry classes on women's side.
Tuesday,	3.00 P.M.	Hall 5, afternoon tea served.
	3.00 to 5.00 P.M.	Games, reading, and individual work in different wards.
	3.00 to 3.30 P.M.	Hall 3, phonograph concert.
	3.30 to 5.00 P.M.	Halls 1 and 2, phonograph concert.
	4.00 to 5.00 P.M.	Library hour in centre (for patients and employees).
	7.30 to 9.30 P.M.	Card party for patients in amusement hall.
Wednesday,	2.00 to 4.00 P.M.	Visiting hours.
	2.00 to 4.00 P.M.	Special program by phonograph.
	4.00 to 5.00 P.M.	Patients for long walks; individual help in basketry, etc.
	6.30 to 7.30 P.M.	Halls 11 and 12, phonograph concert.
	7.30 to 9.30 P.M.	Dancing class (for employees).
Thursday,	2.00 to 4.00 P.M.	Basketry class on women's side.
	2.30 to 5.00 P.M.	Card party, hall 5 (patients from all female wards).
	2.30 to 3.30 P.M.	Halls 18 and 19, phonograph concert.
	6.00 to 7.30 P.M.	Hall 17, phonograph concert.
	2.00 to 4.00 P.M.	Basketry class, hall 5.
Friday,	2.00 to 3.00 P.M.	Corn-popping in large kitchen.
	3.00 P.M.	Afternoon tea, hall 5.
	3.00 to 5.00 P.M.	Games, reading, and individual work in different wards.
	4.00 to 5.00 P.M.	Library hour in centre.
	2.00 to 3.30 P.M.	Hall 9, phonograph concert.
	3.30 to 5.00 P.M.	Halls 7 and 8, phonograph concert.
	7.30 to 9.30 P.M.	Dance in amusement hall for patients.
Saturday,	2.00 to 4.00 P.M.	Basketry classes on men's side.
	3.30 to 5.00 P.M.	Hall 16, phonograph concert.
	4.00 to 5.00 P.M.	Choir practice, hall 5.
	6.30 to 7.30 P.M.	Halls 14 and 15, phonograph concert.
Sunday,	9.00 to 10.00 A.M.	Church service.
	10.00 to 12.00 M.	Distributing of books and magazines by librarian, and reading aloud in hall 5.
	2.00 to 4.00 P.M.	Visiting hours.
	4.00 to 5.30 P.M.	Country walks for women patients.
	6.00 to 7.00 P.M.	Singing hymns, halls 5 and 16.
	7.00 to 8.00 P.M.	Singing hymns, halls 14 and 15.

It will readily be seen that the success of these methods with the more unfavorable cases depends upon the fact that the first efforts are along very simple lines. They are interested in marching to music, running, wand-drills, calisthenics, folk-dancing, basket-ball, bean-bag games, and school-singing, with frequent opportunities for recreation, such as music and entertainments. Light refreshments are served occasionally to prevent the patients from becoming tired. They grad-

ually progress to more highly developed work, leading eventually to useful occupations of various kinds. The most unfavorable cases are induced to sort waste raffia and tie it into small bundles to be made into rope. From this they are graduated into full-fledged basketry. The women are started at simple sewing and become interested ultimately in embroidery or fancy work. Others are taught artificial flower-making, stencilling, oil and water-color painting, brass-work, book-binding, or rug-weaving. Many of these patients are finally fitted for employment in the various industrial departments of the hospital, where they make shoes, brooms, brushes, and some even do clerical work. The most hopeless cases of dementia præcox have in some instances been enabled, as a result of reëducation, to return to their homes greatly improved or cured. The mental improvement goes hand-in-hand with the awakening of their interest in their surroundings and their ability to resume their forgotten occupations.

Control of Contagious Diseases.—The strictest vigilance must be exercised in institutions where a large population is present to prevent the occurrence of contagious diseases. In New York when a person is pronounced insane by two legally qualified examiners and is subsequently committed by the judge of a court of record, hospital attendants are sent to his house to remove him to an institution. An opportunity is thus offered for observation as to the sanitary conditions of the locality from which the patients are brought. In spite of this some will occasionally be admitted who are suffering from or have been exposed to various contagious diseases. The numerous employees of the hospital, who have free access to the surrounding cities and villages are often responsible for serious epidemics. Every effort should be made to prevent such misfortunes, as they constitute a serious menace to the operation of the institution in a short time. When a contagious disease once effects an entrance into the wards it is only with extreme difficulty that it can be eradicated. Comparatively harmless affections, such as mumps and measles, often necessitate the bed treatment of scores of patients at a time and strain the nursing facilities of the hospital to the utmost. These contagions, moreover, often render many of the nurses and attendants unable to perform their duties as the result of illness. It therefore becomes of the highest importance to make a prompt diagnosis, and facilities for the complete isolation both of employees and patients become an absolute necessity. Typhoid fever, diphtheria, scarlet fever, and measles have been the most troublesome diseases. There was in one of the New York State hospitals an epidemic of diphtheria which was a source of annoyance for nearly six years, with a total of over 200 cases and a number of deaths. Preventive measures are of the utmost importance. When there is an epidemic of smallpox in the neighborhood of the hospital every patient and employee should be vaccinated. When diphtheria gains an entrance the antitoxin should be generally used for its immunizing effect. The developments of the last few years have shown us that vaccines, when properly used, will render an epidemic of typhoid practically impossible.

Unfortunately other diseases are not so easily prevented and eternal vigilance and absolute cleanliness must be depended upon to prevent infection from other sources.

Ophthalmological Examination. — Every institution for the insane should have the services of an expert ophthalmologist. In the study of nervous diseases, where a knowledge of the condition of the eye is so necessary and where the presence of diplopia, changes in the field of vision, hemianopsia, choked disk, amblyopia, etc., becomes such an important factor in the diagnosis, eye examinations should be made a part of the routine study of the case. Toxic conditions may be explained by the presence of an albuminuric retinitis. Hysterical conditions are often recognized by the finding of a contracted field of vision. The existence of hemianopsia with the presence or absence of Wernicke's light reflex sometimes determines the location of a brain tumor when its existence was unsuspected. Without any regard to the value of such discoveries from a diagnostic point of view, it will occasionally be found that the relief of a severe eye-strain, with the symptoms which accompany it, may have a very material bearing on the course of the psychosis. Very few hospitals devote the time and attention to the care of the patients' eyes that they should receive. An examination should be made after every admission for errors of refraction, gross changes in the fundus, or evidences of organic brain disease. Whenever any striking abnormalities are found, more thorough and elaborate investigations are indicated.

Care of the Teeth.—The care of the teeth is also quite important. It is a very frequent occurrence to find alveolar abscesses which can only be attributed to neglect. It should be the duty of the nurse in charge of a ward to make occasional examinations of the mouth of every patient. Any conditions requiring attention should be referred to a dentist, who should visit the institution at least once, and preferably twice, each week. Only too often it is the custom to defer treatment until extraction becomes necessary. If the patient's relatives or friends cannot afford to pay a dentist for his services, the teeth do not always receive proper supervision.

General Care.—When a person, sane or insane, is deprived of his liberty and of the possibility of caring and providing for his physical disabilities, that responsibility must devolve upon the State. Every patient should have a sufficient amount of proper food and clothing, as well as protection from the extremes of temperature, and should receive all the medical treatment which may be required. The nature of the duties which naturally devolve upon the members of the hospital staff in an institution for the insane is such as to unfit them for specialties other than nervous and mental diseases. It is sometimes the case that none of the resident physicians are qualified to do major surgery. This can hardly be looked upon as a reflection upon men who have no opportunity to perfect themselves in this branch of medicine. The general practitioner is no longer expected to be an expert in ophthalmology, otology, gynecology, orthopedics, and psychiatry. It cannot be

denied that the insane sometimes suffer from a lack of surgical attention. It is true that operative procedures are frequently impossible as a result of cardiac complications, arteriosclerosis, chronic nephritis, or senility. It is, however, equally true that there are cases in almost every institution which would be benefited by proper surgical care. In gynecological conditions operations sometimes have material bearing on the outcome of the psychosis. Under any circumstances every hospital should have a competent surgical staff subject to call.

Place of Surgery.—There was a time when it was supposed that epilepsy could be permanently relieved by trephining, and articles occasionally appear in medical journals endeavoring to show that all psychoses in women are due to gynecological conditions. These statements are now well known to be fallacious. Surgery has, however, assumed a place in the treatment of certain of the neuralgias, in the degenerations of the cord associated with changes in the lateral tracts, and in other conditions which warrant more attention. The decompression operations and other advanced operative procedures show that possibilities hitherto unsuspected may be developed in this almost unexplored field.

New Conceptions of Insanity.—With the awakening which has been so general in psychiatric circles new methods have come into vogue and entirely new forms of activity have manifested themselves. The teachings of Wernicke, Kraepelin, Ziehen, and others have led to investigations which determined the direction of future policies. Our conception of insanity has changed and new classifications have been adopted. It has been learned that much benefit could be derived from psychological studies. Freud and Jung have shown us that a complete understanding of the various psychoses depends largely on our knowledge of the processes which are taking place in the normal mind. The researches of Kraepelin, Alzheimer, and others have shown that much could be learned from histological studies.

The part which the individual hospital is destined to play in keeping pace with modern progress must depend largely on the ability of the superintendent. While his duties are necessarily primarily executive, he should keep himself informed on the trend of psychiatry and see that his institution is kept abreast of the times.

In the last few years our conception of mental diseases has been almost revolutionized. Mania and melancholia as previously described are no longer looked upon as entities but as constituting phases of manic-depressive insanity. Paranoia is no longer considered as one of the most common psychoses. The cause of general paresis has been practically demonstrated. Our hospitals are full of cases of dementia præcox, a disease not described in any of the old standard works on psychiatry. Psychasthenia and many of the other terms now used were entirely unknown a few decades ago. Melancholia is now spoken of as an involutional condition. We have discarded the Utica crib, the strait jacket, and the hypodermic, and have adopted hydro-

therapy and many other more modern methods of treatment. Even the construction of our institutions is radically different.

Results of Treatment.—One may well ask what is being accomplished by these changes? Are we curing the patients? How many of them recover? This is a pertinent and practical inquiry and deserves an answer. Of the 3488 patients discharged from the New York State hospitals for the insane during the year ending September 30, 1910, 1588, or 45.6 per cent., were discharged as recovered and 1250, or 35.8 per cent., as improved; only 650, or 18.6 per cent., being discharged as unimproved. During the two years 1909 and 1910 there were, excluding transfers, 13,691 admissions. During this same time there were 3110 recoveries. It is interesting to note that of these cases 716 were alcoholic psychoses, 1307 manic-depressive insanity or allied conditions, 186 infective-exhaustive psychoses or allied conditions, 120 depressions undifferentiated, 186 dementia præcox or allied conditions, 109 involution melancholia, 91 constitutional inferiorities with episodes, 82 hysterical, neurasthenic, or psychasthenic psychoses, 43 drug cases or other toxic conditions, 40 depressive hallucinosis, 38 paranoic conditions, 50 epileptic psychoses, and 24 unclassified. This is equal to a recovery rate of 227 per thousand admissions. The best results were obtained in cases of manic-depressive insanity, alcoholic psychoses, infective-exhaustive psychoses, depressions undifferentiated, involution melancholia, and dementia præcox in the order given. The recovery rate for the year ending September 30, 1910, was 2247 per ten thousand admissions.

In estimating what has been accomplished we must remember that many cases are discharged every year as improved by their hospital residence, although not entirely recovered. During the year 1910 in the New York State hospitals 323 cases of dementia præcox, 108 of general paresis, 102 of alcoholic psychoses, 122 of manic-depressive insanity, 48 senile cases, 88 cases of constitutional disorders, and 58 of involution melancholia were discharged improved. Certainly it must be admitted that many people are being cured or vastly benefited. The actual number of discharges may appear small, but it should be remembered that the population of our institutions represents a large percentage of unrecoverable cases which have accumulated as years go by. This statement does not apply with equal force to the private hospitals, which receive comparatively few of the chronic class. These institutions in New York state reported a total of 1560 patients during the year 1910. During this time 508 were discharged, 105 as recovered, and 150 as improved. During the year 1911 the Butler Hospital, at Providence, R. I., treated 275 cases of nervous and mental diseases. It is interesting to note that of this number 48 were voluntary patients. Forty recoveries were reported during the twelve months.

Many of those admitted are essentially incurable, including cases of brain tumor, senile psychosis, general paresis, cerebral syphilis, paranoia, imbecility, idiocy, and epilepsy, not to mention advanced

cases of dementia præcox and others where no hope of a recovery is entertained. Some are committed as a last resort after having been treated at private institutions or at home for considerable periods. When all of these facts are considered we have a right to feel that much is being accomplished and that the outlook is decidedly encouraging.

Hospital as Place for Research.—The hospital, however, has another important function to fulfil. We should never lose sight of the fact that every advance that has been made in medicine has resulted only from careful study and research. Our knowledge of psychiatry is far from being complete. Every public institution for the insane has within its walls a wealth of material for research which is too often disregarded. Primarily, careful and complete records are essential; statistical data must be prepared for each case. Only in this way can we derive a more complete knowledge as to the etiology, duration, and prognosis of the various psychoses. The utilization of such information must depend largely upon the existence of a central board, commission, or body of control of some definite form in each State. More thorough statistical studies of the work done would be of great value. Careful examinations are now made of every patient admitted and a wealth of records is being rapidly accumulated. We should combat the idea that this fulfils the obligation of the hospital. Every institution should contribute to our knowledge of psychiatry. We have much to learn regarding the various alcoholic disorders. Why do we have an hallucinosis in one case and a delirium in another? Why does the prolonged use of alcohol lead to deterioration in some, to paranoid states in others, and to a polyneurotic symptom-complex in still others? These are all points of vital importance and will have a material bearing on the prevention and management of the psychoses. Our information as to the course, duration, and etiology of the various forms of infective-exhaustive conditions is incomplete and unsatisfactory. We must know what causes them and in what soil they are induced. Our knowledge can only be complete when a large number of these cases have been carefully studied, analyzed, and summarized. We have as yet only a vague conception of the toxic psychoses. Much remains to be accomplished in the classification and differentiation of the various psychoses resulting from epilepsy. Epilepsy itself, without any regard to its relation to psychiatry, offers a fertile field for research.

Relations between Psychology and Psychiatry.—Much has been said about the relation between psychology and psychiatry. Interest in this subject is largely due to the teachings of Freud, Jung, Bleuler, and others. It is a comparatively unexplored field. This line of investigation, in the light of our present knowledge, would appear to throw a great light on the nature and etiology of hysteria and the psychoneuroses. Every case admitted offers opportunities for far-reaching results. Psychological studies of dementia præcox have been encouraging, and within the last few years new ideas have been advanced regarding the causation of this disease.

We have attached great importance to the relation between mental hygiene and insanity, a subject worthy of the most careful consideration. This suggests a study of the personal history of each individual case. These ends can be accomplished only by conscientious and intelligent efforts on the part of those who are engaged in the actual care of the insane. A history of the normal psychological reactions of each patient is necessary, as well as a careful record of the onset of the psychosis and the factors which induced it. Only in this way can we determine the significance of dementia præcox and the soil which encourages its development. We have at present a more or less arbitrary classification of the different varieties of this disease which must be subject to further analysis. Particularly must we investigate the atypical forms, those with remissions and those which pursue an unexpected course, terminating in a recovery where none seemed possible. The coöperation of all concerned is essential and every member of the staff has an opportunity to make contributions of great value.

A thorough understanding of many of these cases depends upon the results of psycho-analysis and association studies. It would be well in each institution, if such a thing were possible, to arrange for one physician to devote his entire time to this work. He should have an opportunity to avail himself of proper instruction and should be relieved of other duties, so that he can give his undivided attention to methods of investigation which are now indispensable. It would be highly desirable if one medical officer could be assigned to a personal investigation of the more interesting and important cases. He should, if necessary, go to their homes and interview friends, relatives, and members of the family for the purpose of getting complete and reliable histories which might throw new light on some of the manifestations of dementia præcox and other psychoses. This would enable us to determine the influence of constitutional make-up in these cases and would also show to what extent they were affected by improper methods of living and food as well as the role played by various episodes and disturbing factors.

It is almost unnecessary to call attention to the importance of further study of manic-depressive insanity and its various manifestations, typical and atypical. The mixed forms offer a profitable field for investigation and are not sufficiently well understood.

Nor should it be assumed that these avenues of research are open only to those who are engaged in the care of the so-called acute psychoses. We cannot have a full and complete knowledge of any psychosis until it has completed its full course. The chronic cases, which make up a large part of the population of every hospital, afford opportunities of special interest. The different terminal conditions should be considered in connection with the initial symptoms, the constitutional factors involved, the hereditary tendencies, the content of the psychosis in its active stages, the residuals which remain, and the duration of the disease before evidences of deterioration become manifest.

The modern conception of dementia præcox and the still more recent

teachings regarding paranoia have resulted in a very different understanding of the latter disease. The paranoid forms of the various psychoses should be further studied and classified and their connection with genuine paranoia considered. We need new and revised statistics as to the number of cases, the duration, and the possibility of recovery.

Relation between Insanity and Criminology.—The relation between insanity and criminology should be carefully investigated. It is important to have exact data as to the psychoses actually existing among the criminal insane and further knowledge as to how they differ from the ordinary forms of the disease, if, indeed, they differ at all.

Traumatic and Other Psychoses.—The traumatic psychoses offer a definite field for further research and classification. Every case of symptomatic depression and depressive hallucinosis should be subjected to a critical analysis. The relation between involution melancholia and manic-depressive insanity is one of great interest and has been the basis of considerable discussion. Every case should be carefully considered and exhaustive histories obtained, with special reference to preceding attacks of excitement and depression.

Modern psychological methods have led to the description of psychasthenia as an entity. This includes many of the so-called borderline conditions of the older writers. The fundamental factors involved require further study and each individual case offers further opportunities for investigation.

Constitutional Inferiority.—Dr. Adolf Meyer was responsible for the introduction into our nomenclature of the term constitutional inferiority. This was suggested by the studies of Koch in his "Psychische Minderwertigkeiten" and includes a large group, or rather two large groups, of cases. The first comprises the psychopathic inferiorities, as illustrated by the individuals who are often highly developed, but poorly balanced in various respects. These are the eccentrics and cranks, the moral delinquents, and the sexually perverted. In addition there is a class who merely show a mildly dwarfed mental endowment with limited attainments and an inability to grapple with the problems of life. These cases are subject to episodes of excitement and depression, often developing paranoid states of more or less transitory character. They frequently commit crimes and the question of their responsibility arises in court. They are essentially chronic in character, so far as duration is concerned, and their proper care constitutes a serious problem for the State to consider. Many of them are never committed to hospitals for the insane; some drift into our prisons and reformatories; others develop psychoses; many commit criminal acts and are sent by the courts to institutions where they are a constant source of trouble and a serious disturbing element. These conditions generally merit careful consideration and detailed statistical information as to their ability to care for themselves, the nature and frequency of their episodes, and their tendencies toward crime. It is a question whether they should be admitted to hospitals for the insane. Some of these cases are never suited for discharge and are proper subjects for such an institution as

the Elmira Reformatory, where they can receive careful custodial care, at the same time being taught occupations which may fit them eventually for contact with the world at large.

Organic Conditions.—When we come to a consideration of the organic conditions, the wealth of material at our disposal offers avenues of research which are practically limitless. Lambert has differentiated anatomically and clinically between simple senile deterioration and the dementia resulting from arteriosclerosis. In the latter he finds, clinically, sleeplessness, restlessness, headache, dizziness, mental fatiguability, abnormal irritability, palpitation of the heart, and increased blood pressure. In addition to this there are focal symptoms depending entirely upon the location and extent of the arteriosclerosis. This may involve the basilar, inferior cerebellar, superior cerebellar, posterior cerebellar, middle cerebral, anterior cerebral, and the terminal medullary or cortical vessels. A certain more or less well-defined complex of symptoms accompanies a lesion of any one of these larger vessels and Lambert describes a complex associated with the medullary branches. The more common seat of arteriosclerosis is the middle cerebral, where we have a resulting aphasia and heminopsia with paralysis dependent upon the extent of the process. There are often well-defined foci of softening in the deep marrow, the basal nuclei, and other portions supplied by the medullary type of vessels. There is usually a slow onset, with headache, vertigo, irritability, excitability, confusion, loss of memory, etc., with occasional apoplectiform attacks. These are likely to be transitory in character, but there is a progressive physical and mental deterioration. Autopsy usually shows more or less involvement of the larger vessels, with foci of softening in the marrow. The location will entirely determine the nature of the physical symptoms. There is frequently speech defect with aphasic disorders and pupillary changes, as well as motor and sensory disturbances. Death often follows hemorrhages.

The careful differentiation of these various conditions, clinically, is certainly not so easy as the anatomical diagnosis made post mortem. Careful records should be kept in all senile cases, so that the various forms of simple deterioration can, if possible, be separated from the arteriosclerotic disorders. The possibility of corroborating these findings by the results of autopsies in a large percentage of cases renders the problem much simpler and more encouraging. In either form of senile dementia we find pathological changes, such as shrinkage of the brain, with loss of weight, thickening of the meninges, increase in the neuroglia felting, diminution in the number of neurones, degeneration of some of the fiber tracts, and very characteristic pigmentary changes in the cells. There are also pin-point foci of necrosis in the cortex in many cases. The senile changes offer a most interesting field for study. Careful clinical records will, however, be necessary in a great many cases before the symptomatology of the various arteriosclerotic lesions can be regarded as definitely determined.

Central Neuritis.—Dr. Adolf Meyer has revived interest in central neuritis, a condition originally described by Turner. It has been found that it is a more or less common termination in a number of mental disorders. The clinical manifestations are quite definite and the histological changes in the Betz cells are unmistakable. There is room for more investigation, as some of the cases have shown symptoms which are as yet unexplained. As quite a number have been reported from the various hospitals during the past five years, there is a strong probability that many of the points in question will be cleared up in the comparatively near future.

Aphasia.—The hypothesis of Pierre Marie some years ago attracted attention to studies of aphasia. Subsequent investigations would tend to show that his views were not well founded. He at least stimulated an interest in the subject and every opportunity should be taken advantage of to observe these cases clinically, with a view toward corroborating and explaining the symptoms found by subsequent postmortem study.

Cerebral Syphilis.—Another line of research very clearly indicated is a careful clinical study of the various forms of mental disturbance accompanying cerebral syphilis. The Wassermann reaction and the cell count following lumbar puncture have done much toward rendering the diagnosis easier. We also have a definite knowledge regarding the pathological changes to be expected post mortem. In the meanwhile the clinical differentiation of the different forms of the disease is far from complete and warrants much further study. Some of the cases present practically all of the symptoms of general paresis and extend over a comparatively short period, while others begin with a partial hemiplegia, leaving, usually, a permanent residual, with a clinical course characterized by mild egotism, comparatively slight deterioration, often with a paranoid trend, terminating sometimes only after a course of many years' duration.

Other Psychoses.—We need careful clinical records of psychoses accompanying locomotor ataxia, multiple sclerosis, and other nervous diseases, as well as the various forms of meningitis. Accurate reports of all cases of brain tumors and other lesions of the central nervous system are of the utmost importance when followed by autopsy for clearing up doubtful points as to cerebral localization and the completion of our comparatively scanty knowledge of the functions of the various tracts, etc. It is obvious that a study of the postmortem lesions is practically valueless unless we have a detailed account of the clinical symptoms. This will not only assist us in circumscribing certain disease entities, but will furnish additional information as to the functions of various areas of the central nervous system.

Special attention should be devoted to the pathology of Korsakow's disease, Huntington's chorea, infective-exhaustive and toxic disorders.

Mendel's Law.—The renewal of interest in Mendel's views regarding heredity has led to an attempt to adapt them to the etiology of insanity

and the neuroses. Mendel made elaborate studies of the characteristics of plants. His theories were afterward applied to lower animal life and the explanation of the color of the hair and eyes. It has been claimed that the transmission of chorea, color blindness, albinism, and other pathological conditions in man follow the laws which Mendel found to cover plant life. It will be readily seen that the peculiar tendency toward insanity, epilepsy, neuroses, and other disorders shown by certain families has a most important bearing on the study of eugenics.

A review by Rosanoff of numerous cases of various psychoses at the Kings Park State Hospital would indicate that the application of Mendel's views to the subject of insanity is entitled to serious consideration. This is a subject which should be taken up in the various institutions, as only a thorough investigation and most carefully prepared statistics can throw any light on this important problem.

Postmortem Studies.—It is an undisputed fact that advances in general medicine are due to constant efforts toward the acquisition of new knowledge based upon clinical and postmortem studies of material furnished by our large hospitals. We can expect accomplishment along psychiatric lines only by following similar methods. There are numerous opportunities for research which should be utilized if any progress is to be made, and this clearly points to one of the most important functions of the hospital. Every institution must be supplied with all the modern facilities, including a complete laboratory equipment. A competent pathologist prepared to do autopsy work, general pathology and bacteriology, photography and photomicrography, chemical research, and clinical pathology is indispensable. The preservation of museum specimens for further study and comparison is very important. The fact that many of our most interesting cases, from both a mental and physical point of view, terminate their careers in our hospitals, points very clearly to the value of autopsies. It is frequently the case that after the death of a patient only half-hearted efforts, or none at all, are made to obtain the necessary authority for such a procedure. The importance of postmortem studies should be impressed upon all who are concerned in the care of the insane and who take any interest in the development of psychiatry. Experience has shown that autopsies are possible in a large proportion of cases if proper efforts are made. The percentage at the Binghamton State Hospital, an institution of over 2300 patients, has been well over 70 for a number of years and has reached as high as 85.

The mere performance of a large number is, of course, of no material value. The pathologist should have a history of the case with a summary of the clinical findings and a statement as to the conditions directly causing death before a postmortem examination is commenced. This will indicate the line of investigation to be followed and any special procedure which may be required. Without this information many important points are overlooked. The object to be kept constantly in view is a determination of the presence or absence of the lesions;

indicated by a careful study of the clinical symptoms and a correlation of the facts deduced from the mental and physical examinations with the subsequent autopsy findings. It is scarcely necessary to say that careful and complete records are absolutely essential to results that are of any value. A routine microscopic examination should be made of all organs, the sections being retained.

Postmortem studies have been largely responsible for our present knowledge of medicine and often show surprising conditions where the symptoms have been differently interpreted. Statistics which are not based on diagnoses confirmed by autopsy are of very questionable value. We are often led to doubt the results of a Wassermann reaction, a cell count of the spinal fluid, or a tuberculin test only to find that conclusions based on these examinations were accurate. The results of autopsy and microscopic examinations should always be carefully noted in the case records of the hospital and presented at staff meeting with a summary of the history of the case and the clinical findings. Museum specimens should be demonstrated and the microscopic examination of tissues shown by lantern slides or enlargements of the actual fields by some form of projection apparatus.

Bacteriological Studies.—Every hospital should have a complete bacteriological equipment. There is always the necessity for milk and water analyses, the examination of smears and cultures prepared for the diagnosis of diphtheria, etc. Widal tests are to be made for typhoid fever and bacteriological vaccines prepared. The opsonic index is often required in connection with the therapeutic use of tuberculin. Bacteriological researches only can determine the nature of the various infections which occur so frequently in our large institutions. Cultures should often be made from the blood and various organs at autopsy. The cause of death is often overlooked entirely as a result of neglect of this procedure. As soon as the presence of typhoid fever is ascertained vaccines should be prepared for the general immunization of patients and employees. The absence of such facilities may result in great loss of life. The diagnosis of typhoid from paratyphoid infections must depend very largely upon laboratory technique and the differentiation of tubercular infection of human and of bovine origin can be made in no other way. The study of the spinal fluid often gives us a clue to diagnoses otherwise exceedingly difficult. Bacteriological investigations are needed to clear up the origin of pellagra, which has been a serious problem in some of our institutions. We have as yet no adequate knowledge as to the etiology and nature of that disease. The fact that central neuritis is often accompanied by enteritis and sometimes by ulcerations in the mucosa of the intestinal tract would strongly suggest the study of the disease from the bacteriological point of view. The large number of cases of tuberculosis in our institutions should lead to the study of the tubercle bacillus. The researches of Much and others have at least demonstrated that we have made comparatively little progress in our knowledge of that important organism since it was originally described by Koch.

Laboratory Studies.—The laboratory has an important field of work in every hospital in the realm of clinical pathology. The medical work of an institution cannot be properly performed without frequent necessity for microscopic examinations of blood, sputum, urine, and feces. Gastric analysis is only too generally neglected in the care of the insane. Blood counts are often indicated and frequently forgotten in the examination of cases in the wards. The laboratory staff is often depended on to do the tuberculin tests and supervise the observations required. It is also held responsible for a report on the spinal fluid submitted for examination. Accurate cell determinations should be made by the use of the Fuchs-Rosenthal or some other similar counting chamber. The protein content should be ascertained and a quantitative estimate of the percentage of sugar present is of value when available. Wherever a lymphocytosis is demonstrated the fluid should be sedimented and studied by the Alzheimer method, always making a differential count.

No hospital has proper laboratory facilities unless it is prepared to do Wassermann reactions with the blood serum and spinal fluid in doubtful cases of syphilis and general paresis. The pathologist who prepares his own antigen and ambocepter will become much more familiar with the use and standardization of these products and with serum work in general as well as the immunity reactions which are necessary to properly prepare him for the performance of his duties. This line of work makes it necessary to be provided with a stock of guinea-pigs, rabbits, and other animals used for bacteriological investigations.

Modern scientific research is adding constantly to our armamentarium for the diagnosis and relief of disease, not only in the field of general medicine, but in the line of nervous and mental diseases. A recent contribution to our technique is Noguchi's "cutaneous" reaction for syphilis, somewhat similar in its principles to the subcutaneous tuberculin test. Every hospital should make thorough trials of all such methods.

A complete chemical equipment should be included in the laboratory outfit. Although the exhaustive studies of metabolism by Folin and others have not as yet been productive of the results anticipated, the advisability of further investigations cannot be questioned. It is quite probable that a knowledge of the chemical reactions in the neurones will at some future time throw considerable light on the pathological changes taking place in those cells. This is a line of research that has received too little attention. Although salvarsan has been to a certain extent a disappointment to the general practitioner, it will serve to illustrate the possibilities of chemistry in immunity work. Researches of this character may yet solve the problems connected with the origin of malignant diseases, a subject which has baffled investigators for centuries.

It has been too often said of psychiatry that it has not kept pace with other departments in medicine. This criticism was at one time, to a certain extent, justified. The psychiatry of the present day is, however,

making use of all the methods which have contributed so largely to advances in our knowledge of general medicine and surgery. Although we have much to hope for as a result of careful psychological studies and other clinical investigations, the laboratory must perform its part in the general plan and should not be neglected. We must continue our histological studies of the normal brain as well as those of the insane. The discovery of newer methods of staining is adding constantly to our knowledge of the neurones, the neuroglia, and the various tracts and fibers. Histological, pathological, bacteriological, and chemical investigations must continue if we are to place psychiatry on its proper plane. The laboratory should provide facilities for the proper study of the normal and pathological tissues, not only of the nervous system but of the other organs. It is only during the last few years that we have begun to make a proper use of the great wealth of material placed at our disposal in the large hospitals for the insane. If we are to make further progress, we must develop to a much greater degree of perfection the methods of examination and study of cases. The information derived must, moreover, be available for correlation and comparison with the results obtained by other institutions. To accomplish this purpose detailed and accurate observations must be recorded and be made the subject of analysis and classification by some central bureau. The necessity for the utilization of the great mass of information which is continually accumulating in our various hospitals has only recently been properly appreciated. But comparatively little, however, has been done as yet along this line. This applies not only to the study of insanity but of all other medical conditions as well. Every general hospital, and every institution for the insane, publishes an annual report which always contains some facts of interest and value to the profession as well as to the public at large. Of the much more numerous cases which are cared for by the general practitioner we have practically no records. This function should be assumed by the State, not only in the interest of medical science, but for the public welfare and the limitation of disease. It has always been customary to have a board of health or some other organization which, in a general way, has theoretical supervision of the sanitary conditions of the community. It has long been a recognized function of the health officer to maintain quarantine and to assume, to a certain extent, the control of contagious diseases. The list of reportable diseases has been greatly increased but is still quite limited. It has always been conceded that the State or municipal authorities as well as the public at large have a right to be informed as to the presence of epidemics and the regulation of methods for the prevention of disease which might devastate our cities and villages. There has, however, been much objection to the extension of this supervision to the control of syphilis, which is fully as dangerous as typhoid fever and measles, and much more disastrous in its results.

Statistical Data.—Leaving this phase of the question entirely out of consideraion, there is another point of view which is of still greater importance. It would be of inestimable advantage to the welfare of

the public if the duties of the State Board of Health could be materially extended. Although there has always been a prejudice on the part of the narrow minded and ignorant against compulsory vaccination for the prevention of smallpox, general sentiment has encouraged efforts toward the perfection of our resources for combating disease.

It is becoming apparent that the abolition of experimental research would prevent such brilliant discoveries as Flexner's serum treatment for epidemic cerebrospinal meningitis which seriously threatened New York City only a short time ago. Our present knowledge of medicine is based on facts derived from studies of etiology, symptomatology, pathology, prognosis, and treatment.

It is of vital importance that we should determine the recovery rate and the death rate of various diseases. In no other way can we become familiar with the results to be obtained by the prevailing methods of treatment.

Dr. William A. White, of Washington, D. C., has made the suggestion that all diseases be reported to the State Board of Health. This applies not only to institutions for nervous and mental diseases, but to general hospitals and all cases treated by private practitioners. Only such information as would be beneficial to the public welfare would be given out in the form of bulletins and other publications. The nature and scope of the reports required would invite much careful study. It would not, of course, be necessary to report all minor diseases and injuries, which could be of no value or interest. Carefully prepared statistical cards should be devised for contagious and infectious diseases as well as all other conditions which are looked upon as affecting the death rate. These cards should be furnished by the State to institutions and all licensed practitioners. Although this requirement would doubtless be looked upon as a hardship at first and would be frowned upon as an unnecessary and undesirable innovation by the public, it would, in a short time, be regarded as a matter of course.

Detailed reports regarding the 32,000 committed insane in the State of New York are on file in the office of the Commission in Lunacy at Albany. These are, of course, not accessible to the public, and privacy is assured by an act of the Legislature. Every hospital has in its records full information regarding the medical condition of all patients admitted to its wards. No one thinks of objecting to this. From all these sources statistical data of inestimable value could readily be obtained. If these could be placed at the disposal of the State for purely scientific purposes it would only require the coöperation of the general practitioner to render available, within a few years, a fund of knowledge unparalleled in the history of medicine. On the Continent the government reserves the right, in some countries, of keeping complete personal records of every individual within its boundaries. The wisdom of this course is unquestioned abroad. Careful statistics of all medical and surgical conditions would be of much greater value. The State Board of Health could furnish to each city, town, or village an accurate statement, monthly, quarterly, or annually, as deemed

advisable, in regard to the health of the community. The prevalence of certain affections involving the welfare of the public could be taken up by local authorities or medical societies and proper remedies applied. Exact information would be available as to the etiology of all the important medical and surgical affections. When we stop to consider that to cure a disease we must first determine its cause, this information becomes of practical value. One could reasonably expect an actual decrease in the death rate. It will readily be seen that such reports would also result in contributions to our knowledge of symptomatology which would ultimately reduce it to a much more definite science. The duration of disease, as well as the recovery or death rate, would be more definitely understood. Autopsy findings should be reported in all cases and the public should be educated as to the urgent necessity of confirming diagnoses by postmortem examinations. We should profit by our mistake, and information gained in this way can only result in the increased value of medical attendance.

It may be argued that such elaborate statistical information could be accumulated only at great expense. This objection is much more apparent than real. Every State has departments stocked with statistical data of infinitely less value, the expense of which is not considered by anyone. Such an undertaking should be gradual in its establishment and the practicability of its operation could very readily be determined. In the course of time it could be extended and elaborated as the revenues of the State warranted and as the results of the work would justify. To extend the benefits of such researches to the country in general there should be a central bureau at Washington, to which should be reported annually the information and statistics compiled by each State. The operation of this department should, of course, be under the direct management and control of the United States Government. A research laboratory and an institute for the advancement of medical science might well be considered as a proper adjunct to such a bureau, which should be intrusted with the general supervision of the health of the country and the direction of all necessary quarantine and health regulations. The merits of such a plan are well worthy of careful consideration by all who are interested in the public welfare.

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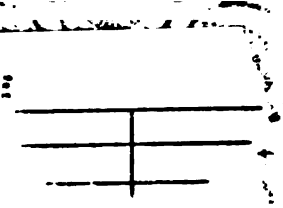
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